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ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2291

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CEMA COOPERATION ON USES OF SECONDARY MATERIALS DISCUSSED

Prague NOVE SLOVO in Slovak 1 May 82 p 6

[Article by Peter Zrinsky: "Program of Cooperation: CEMA Initiative on Use of Secondary Raw Materials"]

[Text] At the 36th Session of the CEMA Committee on Cooperation in National-Industrial Distribution, the Council on Economic Mutual Aid decreed that in the implementation of measures for the more rational utilization of material resources extraordinary attention is to be devoted to cooperation in the area of methods and technologies for the utilization of secondary raw materials and in the development of the equipment essential for this.

The work plan for this CEMA committee therefore included projects of scientific and technical cooperation focused on the development of technical processes, equipment, and the design of production lines for the processing of solid household wastes on the condition that any specialization and cooperation in production will be applied by interested CEMA member countries in accordance with the results of this scientific-technical cooperation.

In the CSSR, 3-3.5 million tons of solid household waste are produced annually. Extrapolating from existing solid household waste dumps near urban areas of the CSSR, we arrive at the following composition of solid household waste: paper, 16 percent; organic materials, 36 percent; plastics, 5.5 percent; textiles, 3 percent; magnetic metals, 4.5 percent; glass, 12 percent; other combustible materials, 21 percent; noncombustible materials, 2 percent.

With an appropriately chosen reclamation technology for individual components it is possible to count on an average rate of extraction of 75-80 percent, and 95 percent for magnetic metals. If the capacity of a planned processing plant were, for instance, 100,000 tons of solid household waste annually, it would be possible to extract on an annual basis the following amounts of secondary raw materials, prior to reprocessing: paper, 14,450 tons; plastics, 4,360 tons; glass, 8,930 tons; magnetic metals, 3,880 tons; nonferrous metals, 1,000 tons.

In addition to these raw materials, it is possible to utilize the organic part of solid household waste for the production of compost and the excess

combustible materials group for combustion. The value of these raw materials represents about Kcs 13 million per year and would replace primary raw materials with a value of Kcs 50 million per year.

With a view to comparing primary raw material resources and secondary materials, the following examples may be adduced: 1 ton of recycled paper takes the place of 2.51 cubic meters of wood. For the melting of 1 ton of glass it is necessary under varying conditions to extract, process and transport over varying distances, in differing amounts and changing proportions 10 or more component materials and raw materials. Given a shortage of shards, consumption of other raw materials increases, some of which are imported, while at the same time the useful life of glass tanks is shortened, resulting in an increase in the consumption of materials for their construction. A ton of waste plastics represents a saving of 2.5 tons of crude oil. A ton of scrap iron replaces 4 tons of iron ore in primary metallurgical production, along with 2 tons of bituminous coal and other materials. In addition to this, the scrap from solid household waste contains about 70 percent tinplated cans. An appropriate detinning technology would make it possible to obtain 5 kilograms of tin from a ton of waste cans.

Examples of energy conservation can also be cited; energy consumption for the reheating of sorted metallic wastes to produce raw metals is as much as 10 times lower than for obtaining the same amount of metal from the basic raw materials. One ton of pure glass shards represents a saving of about 80 kilowatt hours in comparison with the manufacture of paper directly from wood, and of 400-450 kilowatt hours in comparison with production from dried unbleached sulfate pulp.

The noneconomic effects of the use of solid household wastes as a secondary source of raw materials include a reduction in the pollution of the soil, water and air which arise from the extraction and production of traditional raw materials. And the reduction in labor intensiveness which comes from the obtaining of raw materials by industrial processing in an automated production process is a substantial contribution from the viewpoint of the society as a whole.

The foregoing data were contained in a report related to the proposal, Agreements concerning Scientific and Technical Cooperation on the theme of The Development of Rational Technological Processes, Specialized Equipment and Automated Lines for the Comprehensive Processing of Solid Household Waste, which has been discussed by the SSR government.

A factory for the processing of solid household wastes represents, basically, a nontraditional method for the detoxification of wastes by industrial separation and processing, making it possible to obtain secondary raw materials from wastes. The basic elements of the technique, which resolve the technological-operational issues, have been proposed on the basis of findings and experiences of the developed industrial countries where substantial financial and material resources are expended on the solution to these problems.

The program of cooperation is composed of 11 tasks. The CSSR is taking part in 3 of them: 1. Developing the technology and working proposals for equipment for the preparation of solid household wastes into fractions according to size. This task is divided into 6 stages. The CSSR has been proposed for the assurance of the entire task without cooperating countries. The organization responsible for solving this problem will produce prototype sifting equipment for solid household waste in 2 types, or perhaps variations of the same model, on which testing will be performed, on the basis of which corrections may be made in the technical documentation of the equipment. 2. Developing the technology and working proposal for equipment to extract glass from solid household wastes. According to the preliminary agreement, the CSSR would cooperate on this task with the People's Republic of Hungary. 3. Development of a technical proposal for the processing of the unusable portion of solid household wastes (for pyrolysis, combustion, etc.). The object of this cooperation is a technical proposal for one of the technical phases of waste processing, the one which assures the processing of the residue remaining after the separation of utilizable raw materials. In addition to the CSSR, the cooperating countries are the People's Republic of Poland and the Romanian Socialist Republic.

Total Czechoslovak participation in the cooperation included in the agreement relates to work on similar subject matter which had been proceeding in recent years in the Prague Institute for Research and Development in Local Economy.

The CSSR is interested in this agreement because the implementation of the technology for processing and utilizing wastes as a secondary source of raw materials, and the implementation of the results of the above mentioned tasks has so far been connected in this country to deliveries of certain pieces of equipment from nonsocialist countries.

Organizations of the CSR Ministry of the Interior are so far participating in the agreements. Implementation, but also effectiveness of operation are also a concern of the SSR Ministry of the Interior, and therefore of both republics, just as for the entire Raw Materials Collection organization. And it is not out of the question that in the future research and/or economic organizations of the Slovak Socialist Republic will be interested in direct participation in cooperation within the framework of the agreement.

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ENERGY AS GROWTH FACTOR EVALUATED

Prague PLANOVANE HOSPODARSTVI in Czech No 4, 1982 pp 1-8

[Article by Dr Vitezslav Vinklerek, deputy chairman of the State Planning Commission: "Energy--a Growth Factor"]

[Text] The internal and external conditions which have arisen in the late 1970's and which are shaping up in the early 1980's will no longer foster a predominantly extensive character of the development of Czechoslovak economy. Every previous development had to consider--and the future development will have to consider even more--such basic facts as the restricted and insufficient resources of fuels, raw materials, materials, the limited acreage and hence, also a limited supply of raw materials for our food industry, and the landlocked position of our state which calls for an extensive development and increasing scope of laborious overland transport operations. In order to achieve increasingly higher inputs into our economy, particularly the most expensive types and lines of products must be procured, and under such circumstances it is imperative that more and more labor forces available to our society be assigned to the production of those goods with which we must cover the costs of imports and transportation. What remains is less labor available for the production of goods to satisfy the other needs of our society.

We must economize with social labor and stop using more of it than necessary to cover the essentials with which we shall always have to supplement our domestic needs; this task was articulated in the discussion and decisions of the 16th CPCZ Congress as follows: "...We must be far more consistent in implementing the long-range economic strategy of higher efficiency and better quality of all labor. This will be achieved: by shifting our economy toward an intensive development; by efficient structural changes in our economy and by rational exploitation of our production potential; by rational management of all resources and by their profitable processing; by better management and extensive development of our working people's initiative; by linking our economy more intensively to socialist economic integration and international division of labor."

The implementation of this economic policy is affected by several factors, above all by our state's balance of fuel and energy. Early in the era of the building of socialism its solution required thorough concentration of

our forces on increasing our domestic production of coal, particularly of black coal, on generation of electric power, etc. Later during the 1960's and in the first half of the 1970's its needs were covered by foreign trade, especially by magnificent programs in economic cooperation with the USSR, whose achievements continue to serve as the mainstay of our foreign solutions to this problem. The volume of fuel and energy imports had gradually expanded and now it amounts to approximately 40 percent of our domestic consumption of primary energy sources. This share is so much more important because it consists almost entirely of higher types of energy, namely, natural gas and especially crude oil. It was correct and advantageous for our national economic development to increase the share of imported resources during the era of "cheap oil." This entire development is apparent from the following data (in million tmp):

	1960	1965	1970	1975	1980
Consumption of primary sources of energy in the CSSR	56.9	71.9	81.2	93.2	103.2
Increment of domestic consumption	-	15.0	9.3	12.0	10.0
Imported crude oil (in million tmp)	3.3	8.4	13.7	22.2	26.3
Increment in oil imports (in million tmp)	-	5.1	5.3	8.5	4.1
Share of the increment in oil imports in the increment of domestic consumption of primary energy (in percent)	-	34.0	57.0	70.8	41.0

Some significant aspects should be noted in the above figures. Over the past 20 years our domestic consumption had been increasing almost along the straight line with the average annual increment of 2.3 million tmp. Should we therefore conclude that this trend will continue for the next 20 years? Should we anticipate that our current consumption which at approximately 6.8 tmp per citizen is already among the highest in the world (this is hardly proof of progress) will reach a consumption of about 10 tmp per citizen in the year 2000? And over the following 20 years thereafter a consumption equal to 12-15 tmp per citizen? Such a prospect is unconscionable and above all, impossible.

Nevertheless, we must realize at the same time in particular that:

-- As far as crude oil is concerned, the attempt to continue the development of the past 20 years by increasing the share of imported resources to cover our domestic consumption has already come to an economic dead end. As known, the price of crude oil in world markets skyrocketed in 1973-1974. In this conjunction we do not appreciate properly the fact that the 1979-1980 price

is double the 1973-1974 price. Although at present we are not paying such exorbitant prices as those reported in world markets, nonetheless, this year we shall pay for crude oil about Kcs 20 billion more than we used to pay in the early 1970's. Such enormous additional expenditures stemming from increased prices represent roughly the amount of the annual increment of national income created at that particular time and simultaneously, this indicates the amount of work which our society must save in other areas in order to pay for oil. Under such circumstances, at the current level of oil consumption in power generation the use of oil is inefficient.

After the initial price increase of oil over the past 5 years we have taken steps toward better exploitation of our cheaper domestic resources, which produced additional sources equal to about 10 million tons of lignite (approximately 3.5 million tnp); now its potential is almost exhausted and we are near the ceiling of our domestic production. However, even the costs of domestic resources are steadily rising. We are mining black coal progressively at greater depths and in thinner seams and furthermore, strip mining of lignite has reached depths of about 150 meters. Although increasingly more technology is being put into operation, it cannot compensate for the deteriorating natural conditions and rising costs.

As far as certain structures are concerned, the need to expand the primary sources of energy, whether domestic or imported, is therefore accompanied by the necessity to redistribute considerably social labor. The demands on the volume of that redistribution have reached such a level that even in order to maintain the current volume of the most expensive resources (particularly crude oil) it is necessary to reduce gradually the use of our national income for domestic purposes. Instead of being a factor of growth, an expanding volume of primary resources of energy in their current structure would become a burden for our national income. From this assessment we may already draw certain conclusions:

1. It would be difficult to achieve a rational growth of national economy without a certain growth of primary energy resources, necessary changes of industrial structures, etc. However, it is absolutely impossible for us to continue the practice adopted by many enterprises and often enough also by their superior institutions: expanding the production (as well as building new plants) without comprehensive study of the methods and economic conditions which will determine the supply of fuels and electric power as well as of raw materials and materials for an expanded production. It used to be taken for granted that fuels and energy will be--or must be--made available, but that assumption no longer applies automatically.

2. In addition to the definition of the necessary inputs in the production, the entire economic production sphere must also regard the ceilings for fuels and electric power as important data for the determination of the objectives in the scientific-technological development and investment of funds in the production. In this respect, such tasks as conservation of fuels, energy, metals, raw materials and materials and their best possible processing and conversion into final products are now of foremost importance.

Furthermore, it may be said that conversely, limited amounts of primary energy (and also other raw materials and materials) may be used only where they can be most profitably utilized.

If we comprehensively consider the overall economic and financial situation of our state and the need to remain in complete balance with socialist and other states, and if we realistically assess our prospects, we come to the conclusion that we cannot presume that in the future we shall obtain more crude oil than in 1982. On the other hand, we may realistically envisage a certain growth of imports of natural gas probably through this whole decade.

The expansion of our domestic coal production may be only temporary, structurally differentiated and limited in quantity. Everything suggests that even if we fully concentrate on the development of new mining zones and prepare the forces and assets of our national economy for it the volume of black coal produced in the Ostrava-Karvina basin during the 1990-1995 period cannot be maintained at the current level. Lignite will continue to serve for many years to come as the basic resource for power generation and in the future particularly for heat generation; we may, and must, count on a certain growth in its production in the near future. In the former as well as in the latter case the volume of mining production will be affected mainly by the quality of the operating machinery and equipment as well as by the skill of the operating crews. After all, the giant excavator technology, for example, represents values of Kcs hundreds of millions for each independent complex. In the nearest future such values cannot remain without effect on the growth of production, although it may be relatively slight, and in the future they will positively influence higher productivity of labor. A certain decline in the production of black coal should be therefore compensated in the nearest future by an increased production of lignite.

The increase in imported primary sources of energy will therefore not be as significant as in the past and neither can our domestic resources of solid fuels increase much more. Thus, in fact, the only potential factor in the growth of primary resources of energy in the CSSR is the nuclear electric power.

This brief and simplified prognosis concerning the potential development of basic resources of primary energy should lead to further considerations which evidently will be affected by the necessity to implement extensive and fundamental structural changes in the area of resources as well as in the consumption of primary energy and thus, also to considerations about preparations and organization of such changes.

When allocating crude oil, priority must be given to its utilization in the process of expanded socialist production which will process it appropriately, i.e., practically as a chemical raw material (and even here primarily in the most profitable chemical production) and where oil is irreplaceable and still essential as a traditional factor in our national economy. However, this calls for higher yields of light petrochemical products. In the nearest

future we shall begin the construction of a cracking unit and if possible, of other facilities with processing capacities of approximately 1 - 1.5 million tons of dark petrochemical products. Evidently, another project of that type will have to be built and put into operation after 1990. The need to obtain light products from the newly built capacities (i.e., at the price of additional investments and expenses) only underlines the fact that they must be used only where they may be properly processed.

Since we have reached the conclusion that crude oil is now too expensive to be used for power generation and since for its more lucrative processing we adopted the objective to increase the yield of light products, we must realize that in the future about 3 million tons of dark petrochemical products cannot be used in particular for power and heat generation. This does not apply only to the consumption in enterprises managed by the Ministry of Fuels and Energy but also in every area of our national economy and in generation of heat for technical purposes.

The situation is characterized by the following data (in million tons):

	Index				
	1980	1982	1990-1995	1990-1995	1990-1995
	Actual	Plan	Estimate	1982	1980
TTO consumption in national economy - total	6,970	5,735	3.0	52.3	43.0

From the trend of these figures it follows that the consumption of heavy heating oils must go down relatively rapidly. A long-range outlook suggests that their consumption must drop well below the above-mentioned 3 million tons. Practically every consumer faces the problem of not counting on general overhaul and so much less so restoration of facilities for combustion of liquid fuels but mainly on conserving power and heat in general and thus, also reducing the consumption of liquid fuels and then converting the facilities for combustion of liquid fuels but mainly on conserving power and heat in general and thus, also reducing the consumption of liquid fuels and then converting the facilities to the available fuels (lignite, gas).

-- By expanding the basis for nuclear electric power we shall create promptly essential opportunities for the above-mentioned structural changes. Should we fully compensate for the reduced consumption of petrochemical products in the area of exploitation of energy, we will have to deal with limiting their consumption in our national economy or with producing additionally about 10-12 million tons of lignite annually prior to 1990-1995. That is neither simple nor easy; such a growth of coal production is not very realistic, yet some points of departure in that direction are beginning to appear. Their common denominator is the development of nuclear power.

We may estimate with great deal of optimism that 5,280 MW nuclear power plants will be in operation in the CSSR before 1990. Their output will develop as follows (in million kWh):

	1980	1982	1990
	Actual	Plan	Estimate
Production	4,523	5,350	28,000 - 29,000
Increment over 1980	-	827	23,477 - 24,477

If managed rationally and used efficiently, our domestic consumption of electric power may increase during that period by about 15,000 - 17,000 million kWh even with higher consumption for traction purposes. This suggests that in 10-15 years energy generated in coal-operated power plants may be cut by 7-8 billion kWh and that would release for other purposes approximately 7-8 million tons of lignite whose production will increase moderately in the coming years--in this case mainly to replace fuel oil for power and heat generation.

What directions are feasible under such circumstances, or which solutions should be studied in depth in terms of heat generation?

1. We must rebuild electric power plants furnished with condensation aggregates, which will require general overhaul, convert them to thermal plants (with lower generation of electricity) and organize a system of centralized heat supply in the vicinity of such locations. We must gradually take over supplies to industrial enterprises and nonproduction facilities within accessible areas and thus, displace heat generated first of all from overly expensive thermal media (mainly fuel oil), in other words, we must undertake such reconstructions primarily in locations where liquid fuels are used at present.

2. Gas in part from higher sources and from the gradually released coal should be used to replace heating oil and boiler rooms and heating plants in industrial enterprises and national committees must be rebuilt as economically as possible. We must proceed in this direction with utmost efficiency and planners, technicians, engineers, etc., will have their say here. Furthermore, this program calls for, among other things, better design of boilers for liquid fuels and their assembly which will enable us to use coal with lower caloric values and at the same time to keep their effect on the environment within acceptable limits.

3. We shall use the released coal for selection and modernization of finishing and screening plants and thus, enable our population in time to purchase ample supply of various kinds of graded coal in corresponding [word illegible] relations. This may also help mitigate the negative effects of burning lignite on the environment.

4. We shall use sources of electric power more extensively to supply power for households and public buildings on the basis of current usage (heat storage stoves, etc.). However, there are some new opportunities, for instance, for cooking purposes electricity may replace propane-butane (another petrochemical product) which is in short supply. Furthermore, it may be well worth considering to combine long-distance delivery of heat with electric power, which is common practice in the world (apartments are tempered as units and living areas are heated with electric modules to comfortable temperatures).

Among other considerations on hand is, for example, conversion of the released lignite for generation of higher types of energy. However, this is not so much a practical problem, i.e., to release sufficient amounts of that fuel, as much as a theoretical dilemma--to find economically feasible methods of that particular conversion. The development of science and technology may lead to some other approaches.

In the coming years the resources of primary energy will expand far less rapidly than in the past and the factor which will most determine their overall growth is nuclear power. In this situation the dynamism of the growth and efficiency of our national economy will depend to an overwhelming degree on conservation of all kinds of energy and on the extent of electrification in the fuel-energy balance. In addition, created national income is also the value of the energy conserved, i.e., the better the conservation not only of all kinds of energy but above all, of the most expensive types of energy and the better its exploitation, the more dynamic the growth of national income. Moreover, it applies that the more fuel oil we absolutely conserve, the fewer fuel bases will have to be rebuilt.

The following data illustrate the development in this direction thus far:

	1960	1965	1970	1975	1980
Consumption of primary energy (in million tnp)	56.9	70.4	81.2	93.2	103.2
National income (in Kcs billion)	199.6	225.6	313.0	414.7	504.5
National income in Kcs per 1 kg of primary energy	3.508	3.205	3.855	4.45	4.889
Index in percent	-	91.36*	120.28	115.43	109.86

The most relevant factor is the decline of the level to which every kg of primary energy has been processed at the end of the period under observation. This may be connected with the declining dynamism in creating national income

*The steep decline in 1965 stemmed from an unusual decline in the dynamism in created national income in 1963.

and with the changes in the qualitative structure of the primary sources of energy, but mostly with the fact that the processing which used to be positively affected by "cheap fuels" must be based at this time on the growth of the technological and economic standard of the production and of the products. And here we are not proceeding at the necessary speed. This issue is so much more meaningful because a greater percentage of every Kcs of created national income must be set aside at present for payment for fuels, especially crude oil, than in the past. All this emphasizes even more the necessity and urgency of conservation and better processing of fuels and energy throughout the entire process of production.

Urgent tasks (particularly in 1982) demand more strident steps in the effort to process all inputs in our national economy to better advantage and at the same time also to curtail the consumption of crude oil and petrochemical products because they are the most expensive raw materials we are now procuring. It is therefore imperative:

-- that we rearrange the tasks, forces and means in the macroeconomic area so as to reduce the demands for higher consumption of power. Consequently, the accumulation fund and with it, the volume of investments, particularly those which require transportation of materials, will be cut in the distribution of national income, in order to maintain our living standard. This will lower the demands on the volume of stripping operations, consumption of construction materials and metals and thus, on the amount of fuels, electric power and heat. By the same token, transportation of materials and consumption of gasoline will be reduced. At the same time it is presumed that transport operations will be redistributed in favor of railroad and river transportations and factory and air transportation which consumes large amounts of gasoline will be reduced.

The purpose of all such structural changes is to reduce consumption of energy in our national economy; although in 1982 our national economy will advance at a slower pace, its power fuel consumption will have to be over half a million tons less than in 1981 and its consumption of heating oil will be down over 1 million tons;

-- The entire economic production sphere will focus on upgrading fundamentally the standard of our fuel, power fuel and energy economy. For the time being, we cannot even speak of adequate standards of evidence and control and of the ways and means of consumption of petrochemical products and above all, of Diesel oil. Furthermore, the quality of the norms for their consumption, their control (for instance, even such a trivial matter as a working speed recorder in a truck), material incentives promoting conservation, or simply, the whole basic order in exploitation of such expensive raw materials fail to meet our current needs and yet, those are some of the imperative preconditions which will determine the progress of our economy in 1982.

No less important are the future tasks in this area. If we consider the fact that in the entire process of reproduction the standard of processing

of energy resources is unsatisfactory, we must work already now on measures leading to a change in the future. Let us compare the international situation (in 1976) to illustrate this fact:

Consumption of primary energy per \$1 of gross domestic product (in kg m.p.)

	Total	Of which liquid fuels
FRG	0,838	0,405
Sweden	0,909	0,514
Italy	1,146	0,767
Great Britain	1,390	0,517
CSSR	1,755	0,461

Although the above data fail to offer a fully comparable picture (there are differences in methodology, structure, climate, etc.), nonetheless, they do point to the untapped assets in our national economy. However, it is far from easy to mobilize them, nor can it be done expeditiously, because the determining factors here are most of all the technological progress, opportunities created in our national economy, the development of more efficient international division of labor, and so on--in other words, technological and economic solutions which will bring our economy closer to the level of the more advanced countries of the world.

Nevertheless, in terms of efficiency and effectiveness we cannot always maintain the criteria applied thus far. For example, to cut the consumption of coke in the production of pig iron we have gradually raised the share of heating oil as a source for power generation because at that time it was inexpensive and thus, it could replace coke. At present we are using for that purpose about 230,000 tons of oil in metallurgy. However, at its current price it seems more advantageous and rational to increase the consumption of coke over its current volume of about 530 kg per ton of pig iron and thus, to conserve the expensive oil. Under certain conditions this may save as much as approximately Kcs 200 million fco annually because the price of oil is far higher than that of about 230,000 tons of coke saved thus far. Therefore, we must reassess in every area the current approaches to the solution of national economic problems from the viewpoint of the new circumstances. This does not always apply to the amounts saved but probably even more to the values preserved.

In terms of the entire process of conservation, reproduction and processing of primary sources of energy, this concerns above all:

- A higher share of less energy- and material-intensive (but lucrative) services of all types which the CSSR may offer to the world as well as to her own population.

- Scientific-technological, planning and organizational programs, services, transit services and other services (including hotel and dining services) may be of considerable advantage in the process of upgrading material values.

- Higher technological standards of our final products, especially exports, so that we may offer them, along with flawless delivery and trade services, good engineering, prompt delivery, reliable servicing, etc., at even more advantageous prices than our competitors and thus, to get the highest profit from the fuels and raw materials contained in our products. This does not concern only the often mentioned example of per kg prices of engineering products. Practically all export commodities enjoy the same opportunities.

-- Structural shifts in processing of all raw materials and materials. As a country with an insufficient and limited base of raw materials we must procure certain raw materials and fuels at high prices, seek new opportunities to substitute cheaper types for them, and process them better. As for better processing, let us take wood as an example of our raw materials which is important in terms of foreign trade. We may sell it in the form of green wood, lumber, dry and packeted timber, furniture, cellulose, paper, print-- just to mention a few selected grades of processing. Each of these grades means a different level of processing, and we are interested in the highest of them. For that reason we are making every effort to stop for all practical purposes exports of green wood and to export the highly processed types of wood.

This calls for seeking everywhere and everything such solutions that will enable us to process to the best advantage raw materials and above all, fuels (crude oil) and electric power in the production of goods and to bring (even at the constantly rising prices) appropriate profits in foreign and domestic markets (for example, blast furnaces). Every kind of work that is more efficient and better solves at the same time the fuel and energy balance in national economy of our state.

In order to resolve the fuel and energy balance we must develop, improve and use more efficiently economic opportunities and prices, and control them more systematically. However, even a better system of management in itself is no magic wand which can bring about instant changes everywhere. At this time when world economy is struggling with crucial problems, when inflation is rising and when negative effects on our economy are often intentional, it would be a pipedream to expect that it will be easy to put everything in order. We must not yield to such illusions. We are facing a long period of diligent and patient work in every area of our national economy because the sources of fuels and energy and their conservation and processing are not an incidental but rather a common national economic problem.

Nevertheless, one thing must be emphasized. Since we have begun an era of "expensive fuels," the entire scientific and technological vanguard, including our economists, must focus far more attention than ever before

in this particular area. Together they stand before the task of planning technical solutions which will enable use in the near future to produce energy and coking coal more reliably and more efficiently, to convert energy at lower losses, to explain whether and how (with what changes) it might be possible to make better use of our own raw materials for power generation and what technical solutions should be applied to control their consumption and to cut down the consumption of power-intensive appliances. In the end each final product must be planned so that the cost of energy (and materials) used in its production be multiplied in its selling price much far more than thus far. When planning programs for the scientific and technical development over the next 5 or 10 years and their implementation, one of our prime considerations must be the method to achieve that objective. Otherwise we might face even more serious problems at the end of this century than now.

The fact that the price of energy and fuels is now high must at the same time affect the thinking of all echelons in the management, especially the engineering and technical personnel in enterprises and plants, and galvanize their skills and know-how. After all, it is a matter of honor for our engineers to continue improving the production of goods and to use fuels, electric power, raw materials and materials most economically. At the present time this improvement must consider the fact that a higher consumption of power for the production and energy-intensive products is eating up a good part of our national income. We need, however, to turn energy into a factor which will increase our national income. Therefore, all our nation must be concerned about mastering and solving our country's fuel and energy problems.

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AGRICULTURAL MACHINERY TRENDS ANALYZED

Prague MECHANIZACE ZEMEDELSTVI in Slovak No 5, 1982 pp 179-182

[Article by Eng Stefan Kocian, Bratislava: "Technical-Material Base of SSR Agriculture and Its Development in the Last Decade as Seen From the World Census"]

[Text] In order to learn the actual situation in worldwide food production, the FAO, with headquarters in Rome, organizes a worldwide census of agriculture once every 10 years. It ascertains facts not only about the utilization of land, methods of organizing enterprises and the use of intensification factors but also the technical-material base which at the same time indicates the level of productive development.

The program recommended for conditions in Czechoslovakia was applied in such a way as to make maximum use of data regularly determined and only a small portion of the data was obtained by subsequent determination in order to correlate with 1980. The subject of the determination was all agricultural enterprises farming the land or developing agricultural activity. Therefore, in the section that follows we want to acquaint our readers with the main findings of this census, particularly in the area of technical-material standards or comparing the present situation with that of 1970.

The level of development of agricultural production is dependent on natural conditions, utilization of current modern technology and the broad application of the results of science and research.

As emphasized at the fourth session of the CPCZ Central Committee in November 1981, the determining factor in food production is agricultural land which represents our greatest natural wealth. Inadequate legal protection and low appreciation of the economic value of agricultural land resources resulted in a constant diminution of its size, in many cases because of poorly justified diversion to industrial and housing construction purposes and also because some sloping and less fertile areas were transferred to forest lands. The actual losses are considerably greater than the difference gained because a substantial part of the plots were returned to their original use by recultivation. In the year of the world census the socialist sector reported 7,805 enterprises which cultivated 2,323,000 ha [hectares] of farmland. Significant positions in large-scale production are held by 323 state properties

which are managed by kraj agricultural administrations or centrally, 645 JRDs [Unified Agricultural Cooperatives] and 27 joint agricultural enterprises. The average acreage of cultivated land during the last 10 years increased 40.5 percent in state properties and two and a half times in the cooperatives, attaining 5,664 ha and 2,617 ha respectively.

Irrigation

An important intensification factor is irrigation which is used by 46 state properties and 318 JRDs. On the average, one state property has 333 hectares under irrigation and one cooperative has 212 hectares. Their greatest importance is chiefly demonstrated in times of drought as, for example, last year or also in 1976 and 1979. Utilizing these irrigation capacities depends on several factors. In addition to the intensity of rainfall and existing water resources suitable for use, one must also take into consideration the frequency of power breakdowns, electricity failures, shortages of manpower and other causes. The highest percentage of usage was in 1976, specifically 96.2 percent and likewise also last year. The yields from irrigated acreage were higher compared with non-irrigated land by one-sixth in the case of wheat and barley, over one-fourth in the case of seed corn and potatoes, 36 percent more in the case of sugar beets and corn for fodder, two-thirds more in the case of perennial fodder crops and one-half to twice as high in the case of permanent grasslands.

Mechanized Labor in Agriculture

The timely performance of the various work operations connected with the cultivation of crops as well as in animal production, and reducing the work time and exertions of human labor in the production process can only be accomplished, even with reduced manpower, with the help of machines and mechanization. As shown in Table No 1, the process of increasing mechanization of labor in agriculture was not uniformly positive. This is also confirmed by the existing lag in the level of mechanization in the sector of potato cultivation, vegetable culture, fruit growing and maintaining permanent grasslands, etc.

There was significant progress in the mechanization process in animal production which was shown by a substantial increase in the number of electric motors. A similar trend appeared also in the increase of diesel electric units which in many cases serve in certain operations as reserve power sources in case of breakdowns or loss of electric current. At the same time the number of combustion engines fell sharply. Grain combines recorded an increase of 53.5 percent, even with increased performance. Equipment for divided harvesting of sugar beets shows a reduction by over one-half even though its productivity has more than doubled. The number of milking machines increased by one-sixth. The greatest growth was attained in the building of drying capacities, although current problems in obtaining energy sources limit the extent of their full utilization. The number of tractors is about at the 1970 level although their performance has changed considerably. The proportion of caterpillar tractors decreased from the original 17.6 percent to 12.7 percent. The development of processes of concentration of production was also evinced in agriculture by increased demand for transport of material and

raw materials. Even though the number of trucks doubled, nevertheless this was not enough to meet the demand in that area. There is also the fact that, contrary to original plans, the production program of the special Tatra-agro vehicles is well behind schedule.

The degree to which various machines and equipment are used by the properties and cooperatives depends on the structure of production and its overall purpose. Important objective factors, especially for plant cultivation, are the production region and, to a lesser degree, the size of the enterprise. According to data published in Table No 2, all of the enterprises in the socialist sector own and use tractors and other vehicles. At the same time there are three enterprises that use only caterpillar tractors. Of course, among the most widely used implements are plows and also grain drills. Although in neither case are the legitimate requirements of agricultural workers being met adequately. There are, on the average, 14 plows and 5 grain drills for each agricultural enterprise. The harvesting of grain, oil-bearing plants and seed corn is fully mechanized. During the period under study there was also considerable activity in other sectors of agricultural operations. Machine harvesting of sugar beets was carried out at 340 enterprises and harvesting of potatoes at 364 cooperatives and properties.

On the average, an enterprise in the socialist sector of agriculture had 35 tractors, 31 trails and 10 semi-trailers, 12 trucks and 13 other vehicles, including buses. Each enterprise had seven grain combines and twice as many plows. The number of hectares of arable land per piece of equipment in 1980 is shown in Table No 3.

From the above survey it is apparent that the cooperative sector is best equipped mechanically, relatively speaking. However, to make an accurate assessment one would have to know the various pieces of equipment represented which also differ considerably among themselves in productive capacity. Although in the cases cited we are assuming that the composition of the mechanized equipment is relatively the same in all the enterprises under study. There were more substantial differences only in the trucks which at the time was mostly due to broader subsidiary production in the JRD. The considerable limitation of motor fuel resulted in a significant restriction of such activity.

At the same time, however, one must consider that the portion of the year in which, for example, grain combines are used is greater in south Slovakia than in other krajs because under essentially more adverse weather conditions they are also used for harvesting sunflowers and seed corn. A considerable portion of the tractor pool is used for the transportation of animal production. At the Hlohovec State Property, for example, this comes to 20 percent of the tractor operations.

In examining the supply of mechanical equipment of agricultural enterprises according to size groupings it generally follows that the larger the size of the enterprise the greater the number of machines employed (see Table No 4). This trend is not directly proportional to the increased size of the cultivated land which attests, among other things, to better utilization of the

existing technological base. On the basis of state-wide figures, the concentration of land has a positive effect on more economical use of mechanical equipment only to a certain extent. Even in this case the method of organizing work, the quality of maintenance, soil and climatic conditions and other factors have a considerable influence. Enterprises in the size grouping of up to 1,500 ha of arable land had, in the year under study, an average of 22.5 tractors, 8 plows, 3 grain drills and 2 machines for divided harvesting of sugar beets. Cooperatives and properties with twice the acreage did not show a like increase in the number of such machines but rather a considerably lower one. If we compare the group of enterprises having 2,000 to 2,500 ha of agricultural land with the group having up to 5,000 ha we arrive at a completely different mutual relationship. The number of wheeled tractors, plows, milking machines and refrigerating facilities for milk is in the second group of enterprises twice as high and in the case of grain drills and grain combines the coefficient is over 1.7 times the number of machines in the primary group.

A similar trend in comparing previously cited enterprises paired by size is shown also with respect to stationary power sources (except combustion engines) and certain transportation facilities (Table No 5).

In addition to machines, mechanized equipment and transportation facilities directly used by primary producers of food, the worldwide census also ascertained the extent of specialized services and operations which directly influence the level of production achieved with respect to quantity and quality. Under our conditions this refers chiefly to the use and application of fertilizers and pesticides since a substantial portion of the machines and mechanisms for these operations are owned by agrotechnical enterprises, STSs [Machine and Tractor Stations], PNZPs [Agricultural Supply and Purchase Enterprises] and other service organizations.

Fertilizing and Tending Vegetation

During the year under study, 860 enterprises with 310,000 hectares used manure to fertilize the soil with an average of 37 tons per application. The largest amount of manure per hectare of soil was applied in enterprises with up to 1,000 ha of agricultural land, or 44.0 tons, and the smallest amount was in enterprises cultivating 7,000 to 8,000 ha, or 33.6 tons.

The majority of the enterprises did fertilizing using their own equipment, although the figures for agrotechnical enterprises was 8.7 percent, by STSs 3.62 percent and by other organizations 0.84 percent.

Synthetic fertilizer was used by 954 enterprises of which only 467 used their own mechanized equipment. There were 1,955,000 ha fertilized of which 16.8 percent was done by agrotechnical enterprises, 0.56 percent by STSs and 1.6 percent by other enterprises. The average application was 289.2 kg of pure nutrients of which 109.2 kg was potassium and 77.4 kg phosphorus.

Machines and equipment are used to an even greater extent by other organizations in applying chemical preparations to protect plants. Of a total of

1,312,000 ha treated, cooperatives and properties treated two-thirds with their own equipment, agrochemical enterprises 21.0 percent, STSs 11.4 percent, PNZPs 1,503 ha and other organizations 1.3 percent. On the average, 8.26 kg of preparations was used per hectare of which 3.39 kg was active matter.

The results of the world agricultural census carried out under conditions of the CSSR make it possible not only to compare developments in the last 10 years but also to assess the degree to which the existing technical-material base is utilized and the results achieved according to size groupings of the enterprises. We are convinced that the present decade will also be a significant period in the development of agriculture and will contribute to meeting the goals set forth at the 13th session of the CPCZ Central Committee in 1978 as well as the fourth plenum at the end of last year, especially in the sector of assuring self-sufficiency in foodstuffs and further increasing intensification and efficiency.

Table 1. Numbers of Certain Machines and Mechanisms in SSR Agriculture in 1970 and 1980 (units)

1) Druh stroja, zariadenia	1970	1980	(2)	
			Rozdiel	Index 1980/70
Elektrické motory (3)	90 434	156 611	66 177	173,2
Spaľovacie motory (4)	5 468	996	-4 472	18,2
Dieselelektrické agregáty (5)	309	583	274	188,7
Zberové obilné mlátačky (6)	3 644	5 594	1 950	153,5
Stroje na delený zber (7) cukrovej repy	2 330	1 104	-1 226	47,4
Dojacie zariadenie (8)	5 208	6 042	834	116,0
Sušiarne (9)	400	1 370	970	342,5
Traktory spolu (10)	35 648	35 780	132	100,4
v tom: kolesové (11)	29 390	31 235	1 845	106,3
pásové (12)	6 258	4 545	-1 713	72,6
Nákladné autá (13)	5 724	11 964	6 240	209,0

Key:

1. Type of machine, equipment
2. Difference
3. Electric motors
4. Combustion engines
5. Diesel electric units
6. Grain threshing machines
7. Machines for divided harvesting of sugar beets
8. Milking machines
9. Drying chambers
10. Total tractors
11. of which: wheeled
12. caterpillar
13. Trucks

Table 2. Number of Enterprises Using Certain Types of Machines and Mechanisms

(1) Druh stroja (mechanizma)	(2) Počet podnikov vlastiacich stroje			(3) a počet strojov na 1 podnik		
	(4) RD	(5) SM	(6) socialistický sektor	(4) RD	(5) SM	(6) socialistický sektor
(7) Traktory spolu	647	64	1019	39	81	35
(8) v tom: kolésové	647	64	1016	34	71	31
(9) pásové	641	64	868	5	10	5
(10) Traktorové pluhy	646	64	922	14	28	14
(11) Traktorové obilné sejacie stroje	643	64	855	5	9	5
(12) Zberové obilné mláťačky	628	64	830	6	13	7
(13) Kombinovy na zemiaky	297	33	364	3	5	3
(14) Súpravy pre delový zber cukrovej repy	272	33	340	3	4	3
(15) Kanvové dojacie zariadenie	571	63	699	8	16	9
(16) Dojacie automaty	367	51	459	4	8	4
(17) Chladniče mlieka	619	64	752	7	16	8
(18) Sudiarne spolu	452	59	573	2	3	2
(19) Nádabné súz	645	64	967	13	21	12
(20) Oznamné automobily vrátane autobusov	646	63	1020	14	28	13
(21) Traktorové návesy jednosé	646	64	885	10	21	10
(22) Traktorové prívesy dvojsé	646	64	997	34	72	31

Key:

1. Type of machine (equipment)
2. Number of enterprises owning machines
3. Average No of machines per enterprise
4. Unified Agric. Cooperative
5. State property
6. Socialist sector
7. Total tractors
8. of which: wheeled
9. caterpillar
10. Tractor plows
11. Tractor grain drills
12. Grain threshing machines
13. Potato combines
14. Equipment for divided harvesting of sugar beets
15. Container milking equipment
16. Automatic milking machines
17. Milk coolers
18. Total drying chambers
19. Trucks
20. Other vehicles including buses
21. Single-axle tractor trailers
22. Double-axle tractor trailers

Table 3. Number of Hectares of Operational Land Per Piece of Equipment

(1) (2)	Prípada pracovných hektárov				Plochy (5)
		socialistický sektor	3) SM	4) JRD	
(6)	Traktorový pluh	130,7	124,9	117,8	ornej (7)
(8)	Traktorový obilný sejací stroj	216,3	217,4	214,0	osevnej (9)
(10)	Obilný kombajn	169,7	155,9	167,8	zberovej (11)
(12)	Kombajn na zemiaky	46,2	50,4	46,8	zberovej (11)
(13)	Šuprava na zber cukrovej repy	51,1	53,1	53,4	zberovej (11)
(14)	Traktor	70,7	71,2	67,2	poľnoh. (15)
(16)	Nákladné auto	211,5	276,2	207,0	poľnoh. (15)

Key:

1. Operational hectares in
2. Socialist sector
3. State property
4. Unified Agric. Cooperative
5. Type of land
6. Tractor plow
7. Arable
8. Tractor grain drill
9. Sowing
10. Grain combine
11. Crop
12. Potato combine
13. Equipment for harvesting sugar beets
14. Tractor
15. Agricultural
16. Truck

Table 4. Basic Machines and Equipment of Socialist Sector Enterprises According to Size Groupings

(1) Druh stroje	(2) Podniky a podnikopodstatnou podlou o vymeru (ha)	(3) 50 at 500										(4) 5000 at 50000									
		50 at 500	500 at 1000	1000 at 1500	1500 at 2000	2000 at 2500	2500 at 3000	3000 at 4000	4000 at 5000	5000 at 6000	6000 at 7000	7000 at 8000	8000 at 9000	9000 at 10000	10000 at 15000	15000 at 20000	20000 at 25000	25000 at 30000	30000 at 40000	40000 at 50000	50000 at 60000
(5) Traktory spolu	A	75	68	106	105	106	95	126	81	42	23	13	10								
(6) v tom: kolešov	B	10,2	14,5	22,5	29,0	33,4	39,7	49,2	66,1	75,0	88,1	103,3	153,9								
(7) pšov	A	75	68	106	105	106	95	126	81	42	23	13	10								
(8) Traktorové pluh	B	8,0	12,0	19,0	25,3	28,8	35,0	43,3	58,9	67,0	76,9	91,5	135,0								
(9) Traktorové obilné sečáky	A	51	62	102	104	105	95	126	80	41	23	13	10								
(10) Obilné kombajny	B	3,2	2,8	3,7	3,8	4,6	4,7	5,9	7,4	8,3	11,2	11,8	18,9								
(11) Traktorové pluh	A	68	66	106	105	106	95	126	81	42	23	13	10								
(12) Traktorové obilné sečáky	B	4,0	5,6	8,2	11,2	11,9	13,9	17,8	25,1	29,1	34,3	38,2	51,1								
(13) Obilné kombajny	A	59	63	104	105	105	94	126	81	42	23	13	10								
(14) Kombajny na zemiaky	B	1,8	2,3	3,0	3,6	4,4	4,7	5,7	7,5	9,1	11,4	14,0	15,8								
(15) Kombajny na zemiaky	A	37	53	100	104	103	92	126	79	42	23	13	10								
(16) Soprávy na zber cukrovej repy	B	1,7	2,4	3,4	4,5	5,4	6,3	7,9	9,4	12,0	14,2	18,8	29,2								
(17) Kantové dovozy	A	2	23	43	55	57	48	51	37	16	9	4	5								
(18) Kantové dovozy	B	1,0	1,7	2,2	2,4	2,3	2,7	2,9	4,2	4,9	3,1	7,2	9,6								
(19) Kantové dovozy	A	9	11	31	45	33	40	68	49	24	15	8	5								
(20) Kantové dovozy	B	1,1	1,7	2,1	2,5	2,8	2,5	3,4	3,8	4,7	3,9	8,0	9,0								
(21) Kantové dovozy	A	15	38	85	93	95	87	120	77	41	22	13	10								
(22) Kantové dovozy	B	3,4	3,2	3,5	3,5	7,4	7,8	10,5	10,8	18,0	18,2	14,5	22,6								
(23) Kantové dovozy	A	9	25	53	54	55	54	77	58	32	18	13	10								
(24) Kantové dovozy	B	2,3	2,0	2,4	3,2	2,7	3,7	5,4	6,2	7,1	4,2	5,1	10,7								
(25) Chladacie zariadenie mleka	A	18	48	97	100	102	99	125	81	42	23	13	10								
(26) Seliarne spolu	B	3,7	3,2	4,7	5,5	6,1	8,3	9,8	11,0	12,8	16,6	18,6	32,8								
(27) Seliarne spolu	A	9	16	58	63	70	80	106	75	40	22	11	10								
(28) Seliarne spolu	B	1,4	1,2	1,4	1,7	1,7	2,5	2,4	2,8	4,1	3,5	2,9	6,4								

A - počet podnikov, B - počet strojov pripadajúcich na 1 podnik
number of enterprises
number of machines per enterprise

Key:

1. Type of machine
2. Size in hectares of agric. land in enterprises
3. 50 to 500 (etc)
4. 8,000 and over
5. Total tractors
6. of which: wheeled caterpillar
7. Tractor plows
8. Tractor grain drills
9. Grain combines
10. Combines for potatoes
11. Equipment for harvesting sugar beets
12. Container milking equipment
13. Automatic milking machines
14. Milk cooling facilities
15. Total drying chambers

Table 5. Power Sources and Transportation Facilities in Enterprises of the Socialist Sector

(1) Druh zdroje		(2) Podniky s pevnou podstatnou podstavou v letech (ha)										
		500 at 1000	1000 at 1500	1500 at 2000	2000 at 2500	2500 at 3000	3000 at 4000	4000 at 5000	5000 at 6000	6000 at 7000	7000 at 8000	8000 at over
(5)	1. Stacionární energetické zdroje	66	107	107	107	95	124	80	42	23	13	10
(6)	Elektrické motory	41,0	82,5	100,5	114,8	143,4	176,2	203,6	333,7	313,3	316,7	712,2
(7)	Spařovací motory	14	27	32	32	29	60	41	29	15	6	5
(8)	Dieselové motory	1,6	1,9	1,6	1,8	2,5	2,8	3,1	3,0	16,4	4,6	3,0
	Dielektrické agregáty	16	33	27	29	30	62	36	23	17	7	6
		1,2	1,4	1,2	1,3	1,3	1,7	2,0	2,3	1,8	1,6	2,5
(9)	2. Dopravní prostředky											
(10)	Nákladní auta	54	106	105	106	95	126	81	42	23	13	10
(11)	Osobní automobily	4,7	7,7	11,1	11,3	12,3	15,0	18,8	19,4	20,5	21,8	35,8
(12)	Traktory	66	106	105	105	95	126	80	42	23	12	10
	Traktory jednoosé	5,2	9,6	10,6	11,2	14,4	17,9	24,1	27,8	33,0	36,7	48,9
	Traktory dvojosé	23	85	107	106	95	126	81	42	23	13	10
(13)	Traktory dvojosé	2,9	6,3	7,8	8,9	10,2	12,4	17,5	19,0	21,8	24,6	39,8
		68	106	105	106	95	125	81	42	23	13	10
		6,3	12,9	19,6	23,1	34,5	42,7	56,8	72,7	76,7	88,5	138,0

A = počet podniků number of enterprises
B = počet strojů připadajících na 1 podnik number of machines per enterprise

Key:

1. Type of machine
2. Size in hectares of agric. land in enterprises
3. 50 to 500 (etc)
4. 8,000 and over
5. Stationary power sources
6. Electric motors
7. Combustion engines
8. Diesel electric units
9. Transportation facilities
10. Trucks
11. Other vehicles, incl. buses
12. Single-axle tractor trailers
13. Double-axle tractor trailers

SUPPORT FOR UNPROFITABLE AGRICULTURAL ESTABLISHMENTS OUTLINED

Prague ZIVOT STRANY in Czech No 9, 82 pp 43-44

[Article "To Improve the Management of Unprofitable Enterprises"]

[Text] The measures adopted for improving the planned management system in our agriculture are among other things, focused, on intensification and consolidation of the khozrashchet principle in the management of agricultural enterprises. Their purpose is to offer a broader area for greater decision-making competence and independence and to promote material incentives and responsibility of the enterprises and their work teams for a favorable development of the production in accordance with the needs of our society. This objective goes hand in hand with restrictions curtailing the state's participation in financing the needs of individual state and cooperative agricultural organizations (with the exception of needs with a more fundamental social impact, such as land reclamation) and thus, making them dependent on resources created by their own effort.

This is a difficult task, particularly for state farms which have lost over Kcs 1.7 billion during the Sixth Five-Year Plan; for three years they were operating at a deficit and in the remaining 2 years they profits amounted to no more than 0.09 and 1.58, respectively. The solution of the khozrashchet problem was approached already in 1980 when the economic policies of planned management in agriculture were being modified. In addition to measures targeted at closer interrelation of individual parts of the plan and at more realistic qualitative indicators of the financial plan, this objective was achieved on the one hand by measures in the price policy system, which in the state sector favorably affected in 1977 the creation of its resources amounting to nearly Kcs 900, and on the other hand, by raising the limits and amounts of the tariffs of differential surcharges for individual categories of natural conditions in which the state farms are classified. The adopted measures positively influenced the achievements of the state farms in 1980, when they earned profits of Kcs 300 million; however, that failed to solve the problem of their khozrashchet. Due to the rising costs of agricultural production and its structure and to the growing needs for investments in its intensification, along with the diminishing effect of those investments, the economic policies required further modifications within the improved system of planned agricultural management, mainly by means of consolidating the prices and price policies as of 1982. These

adjustments will provide more significant support for the economy of our state farms. For example, in 1982 preconditions were created for the state farms to enable them to reach according to summary quantifications on the average 11 percent profitability; the profit is to be used in the enterprises to make their management for most part self-sufficient.

In terms of economic dependence on the state budget, the situation in individual agricultural cooperatives is different and less complex. Most JZD [unified agricultural cooperatives] achieved self-sufficiency even before the introduction of the improved system of planned agricultural management. Nevertheless, even the internal resources created in this sector have declined during the Sixth Five-Year Plan due to a drop in profitability from 14.91 percent in the Fifth Five-Year Plan to 9.17 percent in the Sixth Five-Year Plan. This fostered a rapid growth of credit indebtedness and more enterprises ended their operations in that fiscal year with a deficit.

The cause of the declining profitability of the production lies mainly in external factors, particularly the high costs of external production and services, increasing prices for procurement of basic needs, higher requirements of funds and materials for intensified agricultural production, and in the fact that the wages of the work forces were growing at a faster rate than the dynamism of the production. In view of those facts, the supreme political and state authorities decided to contribute Kcs 2.9 billion from societywide resources for overall compensation of both socialist sectors of our agriculture. In addition to external effects the quality of the management which was not always well organized also affected the current level of profitability of agricultural enterprises. Therefore, the management of agricultural enterprises must regard the funds granted from societywide assets also as an obligation to our society and step up its efforts to achieve better results.

It may be presumed that the adopted measures will enable the state as well as the cooperative sector to develop the *khozrashchet* principles, i.e., to cover the needs stemming from the development of their enterprises as well as the needs of their workers' material security from the resources which they create by their own effort.

Nonetheless, some agricultural enterprises will not be able to create with their available capital and policies by their own efforts all resources necessary for their operation and for the needs of their work teams. There are about 380 such JZD and 100 such state farms, most of them operating in less favorable natural conditions, but some of them operating under better conditions. As ascertained by survey, they are lagging behind because of their inferior management, organization and supervision, and partly also because of their substandard equipment with the needs of production. Moreover, their management failed to implement with sufficient dynamism the measures stipulated in plans for consolidation of unprofitable enterprises, failed to make grants of funds from the state budget contingent on consistent fulfillment of the plans and in many instances tried to resolve the problem of unprofitability by merging the enterprises, which could not eradicate the underlying causes of their inadequacy.

An improved system of planned agricultural management emphasizes a comprehensive solution of this problem and furthermore, creates preconditions for it in areas of planning, economic policies and material incentives. The adopted measures make it mandatory to impose special discipline in enterprises whose production and economy are lagging, which are deep in debt and whose operations have relied for a long time on grants from the state budget. Enterprises selected by the ministries of agriculture and food of both republics through the middle level of the management on the basis of objectively stipulated criteria must prepare according to published principles a program for intensified production, aimed at raising the volume of our domestic agricultural production per 1 hectare of agricultural land at least to the level of the indicators stipulated for average enterprises. This task must have a definite schedule and the programs must specify the measures on whose basis the above-mentioned objectives will be achieved. The management of agricultural enterprises must discuss the announced programs and specify them in detail for corresponding enterprise subdivisions, review them with all workers in order to motivate them for enthusiastic participation in the implementation of the adopted measures, and for that purpose, the system of material incentives must be adapted for the leading cadres of the middle-level technicians and working teams.

Above all, regulations restricting the exploitation of the land and of all means of production, observation of the principles of appropriate agro-technology, supply of adequate amounts of good fodder, determination and maintenance of the portions of fodder, and observation of the principles of husbandry must become an integral part of intensification programs. It is absolutely imperative to improve at the same time the organization and the methods in the management of enterprise subdivisions and to enforce the principle of rewards for achievements. The tasks stipulated in the intensification program and the means for their fulfillment must be incorporated in the five-year plan and further detailed in annual plans.

Next to the managers of organizations, the district agricultural administration must contribute toward consistent implementation of the intensification program. Since the inferior standard of operations in such enterprises is mainly a result of inadequate application of scientific and technical know-how, it is envisaged that teams of experts from scientific research institutes, service organizations and foremost enterprises will be organized in okreses to help draft intensification programs and also to implement them.

The fulfillment of intensification programs calls for considerable financial resources and special funds, and for that reason, our state will allocate funds for their implementation.

This is facilitated by measures for improvement of the planned management system in agriculture. Stabilizing grants and subsidies for investments (except for subsidies from state funds for land amelioration) were canceled and a new economic institution, the "intensification fund" was established with their resources; it is internally divided into an operational sector and an investment sector with very specific purposes. At the same time,

conditions were stipulated for state funds to be released and granted by mediation of district agricultural administration after previous commitment. A basic precondition for agricultural enterprises to receive such funds is to fulfill operational and investment tasks specified in intensification programs and in measures adopted for that purpose. If this condition is not fulfilled, the district agricultural administration or the appropriate middle level of the management must correspondingly reduce the committed funds. This method, plus systematic and responsible control of the fulfillment of intensification programs must guarantee efficient use of the funds.

Another factor which must play a meaningful role in the implementation of intensification programs for chronically unprofitable agricultural enterprises are the goal-oriented rewards to the leading workers of those organizations. The rewards are determined in advance when the intensification program is approved. Their grant depends on the achievement of financial independence in chronically unprofitable enterprises and on the fulfillment of selected indicators and measures of intensification programs. Goal-oriented rewards to individual leading workers are scaled according to the complexity of the tasks of the program, to the lag in the production and economy and to the extent of the organization; they may amount up to Kcs 50,000 in JZD and to Kcs 60,000 in state farms, provided that the indicators for the organization as a whole have been fulfilled. The differentiation of total rewards in the cooperative and state sectors stem from the fact that, unlike in the state sector, the rewards in the cooperative sector are tax-exempt. District agricultural administrations will determine the decisive indicators and the amount of the goal-oriented reward for the director of the state farm and by the administrative council of the JZD. After evaluation of the fulfillment of the stipulated indicators the district agricultural administration will determine the goal-oriented rewards and approve their payment.

It is extremely important for national economy that the level of the production and economy be raised and the chronic lag in selected agricultural enterprises eliminated. Converted to actual results of 1980, for example, gross agricultural production per hectare of agricultural land would be increased more than Kcs 1.9 billion, or 3 percent of the gross agricultural production of all JZD, if it could be brought in the below-average agricultural cooperatives up to the level of average cooperatives. The achievement of this objective is important not only in economic but also in political terms because it intensifies the socialist methods of management in agricultural enterprises.

9004

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OBSTACLES TO ENTREPRENEURSHIP SUMMARIZED

Budapest MUSZAKI ELET in Hungarian 27 May 82 p 4

[Article: "Obstacles to Entrepreneurship"]

[Text] In April the leadership theory work committee of the SZVT [Scientific Society of Organization and Management] held a round-table discussion to clarify the kinds of obstacles that are encountered by entrepreneurship in Hungary.

It first became clear in the course of the discussion that the concept of entrepreneurship itself is not clear, for everyone interprets it differently. Some people are of the opinion that every enterprise is an entrepreneurship, and according to others a usual solution to routine tasks cannot be regarded as an entrepreneurship. Despite the differences of interpretation, a relative identity of views developed in relation to several problems. We shall illustrate with a number of these.

The outlook and the views of the vast majority of our managers and technical and economic specialists do not favor the development of entrepreneurs and do not stimulate the entrepreneur spirit. Very many of them root in opposition to the developing entrepreneur spirit, do everything they can quietly to delay its success. Despite the announced efforts of the political leadership, public opinion is inclined to look at successful entrepreneurs as uninhibited go-getters, hardly able to wait for their decline, even their fall. Recognition, popularity is lacking, they can hardly count on moral recognition. The economic regulators and in harmony with these the limits of tolerance in the socio-political environment will not permit outstanding recognition for outstanding accomplishment. Various differences of magnitude can exist between the social usefulness of the activities of two managers at the same level but a two-one ratio in their income, if such a thing existed at all, would cause an outcry.

It is often mentioned that entrepreneurship is accompanied by risks. This is true, of course, but the risk belongs to the proprietor, the state, and the individual who undertakes the risk is hardly responsible for a fragment of the loss, in fact, he cannot even be responsible because he does not have the wherewithal. Thus it appears just that he should not share in the results achieved--but given a lack of incentive he will not strive for particularly

outstanding results. Therefore, those large-scale profits do not appear which would cover the possible large-scale losses that may come from the risk-taking. The basic element of entrepreneurship, however, is profit and its twin loss, which should also appear in the personal interest of the individual before we can speak of entrepreneurship in practice.

We have become accustomed to preparing solid plans for the fulfillment of which the slow-moving but more or less even resources--credits, materials, machinery, and so forth--are somehow available. Entrepreneurships, however, mean rapid decisions and execution, unexpected demands by means of which outstanding results can be achieved. The slowness and the ease of administrative offices and the delays in committee decisions do not find favor with the entrepreneur spirit.

There is no difference of opinion that the problems of our economy can be solved only by extending and accelerating innovative processes. However, as long as a talented and industrial engineer must "cab it" or must, for example, obtain the wherewithal for a house and the material conditions for a more human life in some other way, in another line, we cannot expect that this requirement will be met. It is ridiculous to ask: Who earns more, the enterprise director or the cleaning woman? And from which one do we expect solutions to our economy's most urgent problems?

On the basis of the round-table discussion, debate material is being prepared which the specialists in the bodies of the MTESZ [Federation of Technical and Scientific Associations] propose to debate in broader circle. It is desirable that as a result of the debates the MTESZ presidium should also take a position and make recommendations to the appropriate organs for solutions to the problems.

6691

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MARJAI ADDRESSES REMEDIES FOR ECONOMIC SHORTCOMINGS

Budapest MUSZAKI ELET in Hungarian 27 May 82 pp 1, 3, 4

[Address by Jozsef Marjai, deputy premier, at the national conference of innovators: "Regeneration Is the Condition of the People's Existence"]

[Text] I am convinced that everyone is worthy of special respect and honor who performs his day's work with the effort to create in a superior way, more perfectly and more rationally--or as it is the style to say, more efficiently--the materials goods which assure the existence and development of the country--said Jozsef Marjai in the beginning of his speech.

Without the activity of the inventor and the innovator there is neither economic nor social progress. Sound economic-social relations, on the other hand, nourish and give incentive to technical development. In a socialist society and in the present situation of the Hungarian economy, bringing creative and intellectual energies into more intensified motion has a special role. The quality transformation of the economy and along with it the society and the speeding up of this process has become a condition not only of development but also of existence. We are dramatically faced with this requirement by the unfavorable--for us--changes in the world economic environment, the permanent world economic crisis overlaid with world political problems and tensions. It is not an exaggeration to put it this way today. Without foreign trade the Hungarian economy would plunge back into the stone age. Most of our products are measured by the values of the world market. Because of our features, dimensions and conditions, the ratio of products measured by the world market is constantly increasing, this is the pressure of development. We must, therefore, be competitive and able to operate on markets. Moreover, the world is constantly developing, even in an era of crisis. Products which are judged to be modern today will be obsolete tomorrow; that which is economic today will be a losing bargain by tomorrow.

Amid the radical changes in the prices for energy and raw materials and the conditions of economic crisis which have proved to be prolonged and permanent for almost a decade on the capitalist markets, the influence is being more strongly felt that the work productivity of some of our competitors on the world market is considerably higher than ours and therefore their profitability--despite their higher wages--is greater than ours. In some others, on the other hand, they are producing with similar productivity but with much lower real wages than ours.

With our technical development and all our efforts, we must close the gap with the first category of countries. A worthy improvement over the long run in the world economic crisis situation cannot be expected. The months may see this crisis becoming broader, deeper, and catastrophical if the determining political factors of the capitalist world and those who are active in the ruling posts of the capitalist world's economic and financial system do not change their policies and if they want to solve their problems at the cost of others, by rupturing and paralyzing the world economic relations system.

Together with the Soviet Union and our allies, our party and government will do everything it can to improve the world political situation, to ease the world economic problems, and to hold and possibly improve our positions.

This work is not without results. Recently, we have seen--as was also felt at the most recent international negotiations--that a favorable change of modest extent has occurred. This, however,--and we must see this clearly--does not ease the pressure on us, and it does not lessen the requirement which life has faced us with.

Despite a significant decline in investments, the crisis has been accompanied by a reorganization of the structure of investments and is compelling the capitalists to a more rational management and production. Thus this weak and possibly temporary revival is not improving our competitive situation, and for the time being it is creating even more difficult conditions for us. This is a starting point which we must take seriously into account and realize in our attitude, activity and all our actions.

We have often put into words the following and I can only repeat it: we must above all manage economically and rationally with import materials. We can make profits on material imports only if we add high domestic values and creative work. In many cases, the material and spare parts imports seem to be less expensive than the domestic. But this is merely appearance. Domestic materials are made more expensive by shortcomings in enterprise cooperation and unorganized work. This is our fault and our weakness. We must devote constant attention to economic energy and material use, to the utilization of by-products and waste, to the development of technologies for saving energy and materials, and to the economic replacement, technically equal in value, of imported materials, semifinished products and spare parts with domestic counterparts. In this field there are broad possibilities for technically creative work. In a very large proportion of these cases this requires innovative, inventive and so-called detailed work. And it also requires specific knowledge of the materials used in the given producer process.

The task is great--unsolvable with the exclusive help of central programs. The economy is dependent on professional knowledge, creative activity and inventiveness, and must rely thereon.

In comparison to the level of the second half of the 1970's, we cannot increase investments in this five-year plan period. We had to decrease them, and in fact in the future we must decrease them still further. We have been constrained to do this. We had to choose between lowering the level of

consumption by the population or reducing investments. We decided to reduce investments. I believe we did so correctly. I am convinced that even without the external constraint we would have been reduced to decreasing our investments. We have extremely great reserves in the field of investment efficiency and in general in the efficiency of the whole production process. With the given investment relations and conditions, the high investment rate was leading to waste and the squandering of social property and resulting in careless management of social capital. We have reserves in investment practice which we must bring to the surface. With this we may, and must, significantly increase the degree of efficiency in production.

With the existing producer apparatus and available means we must manage rationally, ingeniously and daringly. This compulsion of the economy opens enormous possibilities for innovators and inventors. The rational use of existing equipment in the interest of economic satisfaction of domestic and export requirements is the utilization of the restricted investment possibilities at the highest degree of efficiency, if we open for it an actually free road.

Of course, we cannot cradle ourselves in the illusion that we ourselves can create all the technical innovations necessary for economic development, the new products and the modern technology. We must learn from others, we must take over large numbers of foreign results, for we are an organic part of international work specialization, the culture of humanity, including our technical culture.

We are also dependent in the field of intellectual products and technical innovations on fruitful cooperation with the world that surrounds us. We must be aware of this and evaluate it accordingly as a valuable technical innovation when we adjust (do not devalue) a purchased foreign result to our own manufacturing conditions or consumer needs--and develop it further. However, where we have an adequate level of resources of sufficient quantity and concentration available for the attainment of success in time, we are obligated to use these to the maximum degree. We must not only think of epoch-making, original inventions. Our activities are carried ahead not only by great moments and the great historical situations but also by detailed daily work and results which we must respect.

Now and within the next few years we can undertake with responsibility only to maintain the living standards we have achieved thus far. This is not little. But this too can be assured only if we adjust rapidly to changes in the world economic situation and to international development, if we keep abreast and in certain areas also secure the advantage.

It must be clear to everyone that under such conditions, the possibilities for increasing real wages and earnings are limited. If we say--and say correctly--that the differentiation of earnings according to achievements is necessary, we must also say that we cannot solve this in the usual or accustomed, popular manner. That is to say, society "penalizes" small achievement with the same income or with slight income increases, and rewards great achievements with outstanding income growth. If in our present situation--and this is not only

the situation today but also in the coming years--we want to give validity to the principle of income differentiation proportional to achievement differences, and this is essential for life and development, we cannot avoid the "downward correction" of real wages for those individuals and collectives who do not understand or do not want to understand the voice of the times and do not want to put forth the best of their knowledge, industry and inventiveness. This is also a precondition of the fact that those individuals and enterprise collectives which offer the maximum of their talents and industry for the welfare of the community should be able to measure in every way but above all in their own incomes, the evaluation and respect of society.

Our economic policy must create conditions under which it will recognize materially and morally only profitable surplus production, particularly the results of highly qualified, inventive and unexceptionable work and will reduce, on the other hand, the income of those who perform poor quality work, the undisciplined, the manufacturers of obsolete products, the masters of energy and materials, and the producers of superfluous products. Society and, in our conviction, enterprises too should more easily put up with the mutterings of those who plod behind and are unsatisfied rather than have those unsatisfied who are capable of taking along the economy if they receive proper encouragement and incentive and sense the material and moral respect of society. All the more so since the income that adheres closely to achievements is at the same time a means which awakens people more effectively than any kind of agitation to the fact that they themselves are primarily responsible for their individual fate and for which they themselves must bear the responsibility and which they themselves can change.

It is the effort of our economic policy and a task still to be realized to create and strengthen an economic environment in which incentive and compulsion alike lead to disciplined, careful and creative work performance, and at the same time expose to serious consequences those, whether individuals or enterprises, who run after apparent results and do not seek to realize themselves with their industry, talent and inventiveness.

We have done a great deal to introduce financial systems which prevent the outflow of personal incomes without actual achievement and profitable surplus achievements; we have done a great deal but still not enough. Our consumption still exceeds our achievements. The shortcoming and fault of our regulation and management are that we continuously reproduce surplus distribution, which will be accompanied by serious and indefensible consequences if we do not find a solution urgently. In this case we endanger the realization of our basic political goals of improving the external equilibrium and protecting the level of living standards, and in the worst cases we make these impossible.

We must stimulate, and this we still do not accomplish to a sufficient extent, the deeper exploitation of possibilities latent in enterprise independence. We must strive to develop managing conditions in which the enterprises may make worthy decisions, in their own sphere of authority, in questions which they can sense and measure better than anyone else on the basis of the best management knowledge. We must create conditions in which maximum reliance on the talents and industry of the enterprise collective may be the only

materially and morally recognized means of fulfillment of the tasks of the economic community and the socialist enterprises.

It is a fact that under the pressure of the increasingly more difficult foreign economic conditions we still have not fully succeeded in creating such economic conditions.

It remains characteristic today that the central government is still taking on itself a significant share of these burdens that weigh on the country like, for example, the worsening of the terms of trade, the foreign market crisis, the narrowing markets, trade discrimination--and I could continue with the list of serious factors that weigh like "Biblical curses."

As a consequence, many enterprises can still operate in our country--apparently undisturbed, peacefully and without any particular anxiety or restlessness, or without the danger of liquidation--whose management and leadership level does not meet the requirements of today, or even of yesterday.

It is an illusion to believe that at times like this the budget or the state can fulfill the function of "the good Lord," independently or real, material resources, practicing charity, offering help and granting support to the needy. The central government can give support and preferences to those who have fallen behind, to the poorly managing and to the poorly working only from actually produced values which someone, somewhere has produced; that is, from those who work well. Support at the cost of the efficient for the benefit of the inefficient can only be charged to all our accounts.

Therefore, we do not have the possibilities for investments, imports and wage preferences to replace the quality work of the working collectives, technical renovation, and detailed concern, or to counter and cover the lack of these. If we continue to do so, this will be contrary to the interest of all the community, the people, the country and the nation.

The leadership of several enterprises will be obliged to report that the conditions are too strict as measured by their managing capabilities. We can also put it in this way: they are proclaiming bankruptcy. We will have to take account of this and seek for a solution which will give some way for the workers of an enterprise that is bankrupt in the eyes of its leadership and for their producer means to operate efficiently in the future. Or we will look for a managerial cadre which can cope with the tasks, or for another enterprise which can fit the given producer capacities into its own activities.

The older people know and the younger are familiar with it from textbooks that the capitalist withdraws his capital from deficit, uneconomic production. We cannot permit ourselves either the luxury of tying up socialist social wealth permanently where it will not bring all of us the necessarily fair profit and income. We have no right to this luxury. This is the wasting of public property, the diversion of national energies from areas on which we can and must live, which make it possible for us to have a more pleasant life, and to live better and more prosperously. I do not maintain that such a decision will be simple but we shall have to do it; the support of efficient

work as opposed to inefficient is not a matter of deciding whether "I want to or not" but should be based upon strict and unforgiving economic laws. It is true that we have to find a socialist solution to do this, by developing human means of reorganization, but we must do it, we cannot delay it, we cannot keep saying for decades that the tasks are essential but we must wait now, we simply do not have time. We must take the step, even if in some places it causes sorrow, pain and agony: we must do so in the interest of all of us, in the interest of the country.

The enterprise leadership bears special responsibility not only for the management of the enterprise's material energy but also its intellectual energy. Managers are generally, or at least generally now, called to account for the waste of material goods. This practice has not as yet been realized, however, in unused creative and intellectual capacities. We are also familiar with statistics on domestic innovations and inventions suitable for international comparison, and we know that this activity in the Soviet Union and other fraternal countries is characterized by more favorable indexes than ours. Even in countries with a more backward social system, including capitalism, the property owners cannot afford themselves the luxury of leaving unused the intellectual values and the creative intellectual capacities that they have available. Then how can we permit it in socialism, which is a more developed and higher social order than capitalism?

Efficient operation of means and of intellectual capacities is our responsibility, the responsibility of all of us, and primarily of the managers to whose care society has entrusted an important share of the property. I must add that the task of the technical-economic leadership will not have been exhausted when it simply takes over the innovation proposals that have been submitted, subjects them to study, and if conditions develop favorably, actually introduces them and pays an innovation fee.

This in itself is not enough. But even this minimum task has not been fulfilled in certain instances. All of us are familiar with negative examples which understandably evoke an unfavorable reaction and justifiable indignation, have have a damaging effect on the innovators movement even beyond the immediate environment. It has happened that an innovator's fee has been raised more than sixfold on the basis of the opinions of objective experts or in the course of judicial procedure. With what kind of conscience did they establish the award originally?

On what kind of opinion can we have of the business policy of an enterprise which initiates nullification proceedings against a newly introduced patent? Between the reporting of the patent and the nullification procedure, one of these actions is baseless and irresponsible. Among these examples also belongs the relatively frequent attempt of an enterprise leadership to sidestep a judgment on the value of an innovation, and to show an inclination to pay fair innovator's fee only after judicial procedure.

If we want to be objective, we must state, of course, that most of our enterprise leaderships have recognized that only with the use of all available intellectual resources is it possible to make progress and to prosper.

Mere recognition and good intentions, however, are too little. Creation of the necessary conditions have a decisive role within the enterprises. The managers must bring about an organization that will assure that every member of the collective will contribute to the full measure of his strength and capability to solving the short-term and the long-term tasks facing the enterprise. A particularly important managerial task is to assure the essential material-technical and operational conditions for the practical implementation of technical and intellectual works.

At the December session of the National Assembly it was stated that with the development of a modern incentive system an enterprise, without any investment whatever, could increase its achievements by 20 to 30 percent. To think only of innovations, rationalizations, and inventions, it is clear that the reserves have a decisive importance.

Of course, in order for our enterprises to be able to plan with confidence to expand and manage with the money means available to them, to be mobile on internal and external markets, they first need material independence, and secondly an independent decision sphere in all areas where they can make the best decisions. Only under such conditions can we expect that the enterprise activity will outgrow daily, routine work, that innovation will become an element of the first order in its management and undertakings, that the enterprises will dare to take risks and bear responsibility in the eyes of the workers and the state. The enterprises must radically tear themselves from the three-decade-old habit, which is still alive and active in the nerves, and which seeks to solve every task beyond the expected results by using additional resources.

The practical use of innovations and inventions is basically a task of enterprise management, but the responsibility and task of the government and managing organs is also very important. It is essential for the necessary changes that in economic regulation we prevent an extensive spreading of experiments, and remove obstacles in the path of enterprise measures planned for quality development. For this a gradual, complex modification of the economic regulators is necessary beginning with the modification of the prices, exchange rates, the wage and earnings system, the income regulation, and credit practice to making the enterprise forms more manifold and the managing licenses of the enterprises more flexible as well as to the modernization of economic and enterprise planning inclusively. It is in our interest that one of the centers of the modifications should be the liberation of surplus energies latent in innovative capabilities of society.

We must find that objective standard by which the usefulness of the innovation can be judged.

And from the overall social approach this usefulness is clearing the additional yield of the enterprise perceptible in the merited price increase of the innovation, in cost decreases, in the utilization of waste and by-products, or in the additional revenues realized by the transfer of the innovation to other enterprises.

We are confronted with many other problems which have not as yet been reassuringly solved. Such, for example, are the recognition in surplus storage (tobblettarban) of new, useful products recognized by the market, the great sensitivity of enterprise profits to product costs, the just distribution among innovator, enterprise and the state of the risks accompanying the introduction of an innovation.

The most perfect economic regulation and incentive system cannot operate with good results if public opinion and attitudes do not favor the innovator and the inventor, or this type of activity. The strengthening of this is a task for all of us. It is undoubtedly a two-edge sword to be an innovator; on one hand, someone is liked and respected who devotes a significant part of his energy to solutions which increase productivity, enterprise profits, security or work, and also has a favorable effect on the environment. On the other hand, the innovator and inventor is at the same time an unpleasant individual to those who have grown use to--grown gray in--everyday routine work because the natural demand is for change and departure from the accustomed. His attitude itself is a criticism of those who do not behave as he does. Moreover, he also expects, and rightfully in my view, personal material gain from what he has done.

It is a mockery of socialism and a continuous detriment to the public interest if the people who offer surplus achievement, solve tasks successfully, and give what is new and improved are isolated, attacked, and if creative work is made impossible for them. We must unite out of public interest and object to such a phenomenon and attitude.

We must generalize the sound socialist mode of outlook that respect for innovators, inventors and rationalizers serves everyone's interest including that of the country.

It is very important that the workers should regard people with a creative intellect as one of their own, that the latter do not form a separate, closed caste. Let the concept of an innovator be of a category that is always being renovated, expanding, never isolated from the workers, and constantly including more and more members in its circle. In many areas obstacles are rolled in the way of the innovators' and inventors' case by a lack of understanding, lack of interest and unconscionable administrative work. The government must do everything it can to improve the conditions for copyright and patent judgment, but in this respect most of the tasks belong internally to the enterprises.

Some of the enterprises devote care to this, but the attitude is not yet a characteristic one and cannot be regarded as general. It is an important task of the enterprise to increase the professional training of those dealing with the innovations, their interest in seeking out technical innovations and making them known, and to shorten the introductory procedural time period. We may certainly say that the elimination of state and enterprise bureaucracy is the pledge of a rapid decision and implementation. By bureaucracy I do not mean necessary order and administration although in this area as well continuous rationalization and simplification is unavoidable and essential.

In the preparation and discussion of organizational, incentive and other measures designed to serve the promotion of technical development, the government also wishes to rely on the opinion of experts who are active in this area. We shall carefully study and make use of the proposals which are made at plant conferences. We request the same from enterprises, too.

We speak a great deal nowadays of human factors, and rightfully so. In this period, this is what we must group the other factors of management around, and from where we must bring to the surface new and hidden reserves. This is emphasized by increasingly new experiences and knowledge. But it is not enough to keep repeating this, we must create its conditions and its system of means. For my part, I sought by enumerating these things to contribute to the common thinking which is being done at this conference.

We frequently say that ours is a small country, and when we look at the map we can actually see how small we are. The world's fair which is being held in the southern part of the United States and in which we are participating has as its theme "energy turns the world." On our pavilion we have written "Hungarian creative energy for the world."

A large part of the exhibit is made up of posters which show the great Hungarian inventors, and beside them we have displayed the technical drawings which show how many serious inventions were born in Hungary and originated with Hungarians. We were able to show imposing intellectual resources. The human factor has always played a special role in this country and this people, and if the human factor is not realized today and tomorrow, Hungary will not remain in the future the kind of country which is paid attention to and taken into account. In the world of today they try to observe us, the small and the great, friends and nonfriends alike. This is among other things a consequence of the fact that in the past 25 years the party's policy has continuously taken the human factor into account at a high level. The Hungarian party has guarded its policy and will continue to keep it alive and to include that valuable element of continuously renovating its policy while it keeps its basic values and demands.

This capability for renovation is the essential condition for existence and the demand of the party, the country and our people, and innovators have a very great role in it. This is not simply an economic or technical matter, but a nation-wide, popular and national cause. This is how you should receive and treat these questions, these concrete problems, concrete matters and then I believe that this conference will have done good work and that it will have worthy consequences and profitable results.

Permit me to wish you and all those whom you represent good health and good luck in your creative work in the name of the Central Committee of the Hungarian Socialist Workers Party and the government of the Hungarian People's Republic, and permit me to wish you good combined work, for these problems must be solved by all of us together. We can do it only together: you, the enterprises, and the government share in the problems and the results alike. The difficulties and the results are shared in common.

6691
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HAVASI DRAWS BALANCE OF ECONOMIC SITUATION, COMMENT ON IMF

Budapest HETIVILAGGAZDASAG in Hungarian 15 May 82 pp 4,5

[Article by Ferenc Havasi, member of the MSZMP Politburo: "What Is the Way Out?"]

[Text] Is there a cause and mode for two kinds of action--as suggested by the theme of this year's itinerant congress of economists: "A New Course of Growth and the Alternatives of Economic Policy" or is there actually only one way out of our stringent economic situation? On Monday and Tuesday of this week this was debated by about 600 economists at their 21st meeting. The opening address was given by Ferenc Havasi, member of the MSZMP Politburo and secretary of the Central Committee. In the following we selected a number of ideas from his speech.

In 1973 the world began to think over how it should react to those very radical changes which had taken place in a well-known way on the market for oil and other material and energy sources, but above all on the market for developed technology. In these periods the Hungarian leadership underestimated the effect of the economic changes, in their dimensions, and regarded them as transitory. We said that perhaps these influences can be excluded from our international relations. We overestimated a bit the speed of our adjustment capability, and we also judged our financial situation more optimistically than we could have. There were very serious debates over the rate and the extent by which we could pass these losses on to the economic units and to the population. I do not think that even today we can dispute the correctness of gradualism in passing on these losses, particularly as far as the population is concerned. We are, in fact, speaking of the years 1972 to 1974 when we were still discussing property, the stability of large operations and their protection by all means, and not at all of permitting them to engage in competition.

In this atmosphere it was rather difficult to seek for, and even more to work out, radical solutions. At a meeting of the Academy last week, Professor Botnar called this period, very pertinently in my view, the dead point of action.

When the degree of the difficulties involved in the situation was recognized, a search for the way out began immediately, but this was characterized as

much by efforts related to the continuation of reform as, unfortunately, by ideas which saw the solution in reviving methods and concepts which had been used before.

It was under such conditions that we started to prepare the Fifth Five-Year Plan, the goals of which were actually good: competitiveness, improvement of the product structure and restoration of the equilibrium. But at least by virtue of hindsight, the plan had an erroneous assumption, namely the assumption that the external equilibrium could be brought about along with a high growth rate and rising living standards. For the sake of objectivity we must state that such goals were also included by other socialist countries in their medium term plans. In fact, some of the capitalist countries were able to ward off the first oil price explosion while at the same time advancing in these areas. But this erroneous assumption crept not only into the plan but also its execution. Not only did growth turn out lower than planned but also the import demand of the economy increased substantially, to such an extent that in the given structure the economy increased substantially, to such an extent that in the given structure the economy could no longer cover its import expenditures by export revenues. This is how we arrived to December 1978. From this time on, emphasis was placed on bringing about a foreign economic equilibrium, protecting the living standards already achieved, and improving living conditions.

In the 3 years, now going into the 4th year, that have passed since the December 1978 resolution of the Central Committee, economic growth increased annually on the average by 1 percent, but remained below the goals set in the plan. Domestic consumption declined in a differentiated way. Investments were moderated, and consumption by the population rose modestly. In 3 years, exports increased by a total of 16.5 percent, including a 20 percent increase in capitalist export. The material demand of industry declined by 1.4 percent, and this is very important when we know that 1 year's material requirements may be put at 700 billion forints. While energy consumption increased annually by 3.5 percent between 1973 and 1979, it decreased by 1 percent between 1980 and 1981. Our petroleum imports fell from 10 million tons in 1978 to 7.7 million tons in 1981. And 1982 will be the first year when we will seek to manage an import decline of 1.5 million tons in such a way that we will need to import as little oil as possible from the capitalist market. Today there are 100,000 fewer persons working in industry than 3 years ago, but at the same time means efficiency declined in industry, which is related among other things with unused capacities. In practice, we have succeeded in bringing about an equilibrium in our dollar account foreign trade, but there is a serious blemish on this record. We have a deficit of US \$1 billion with the most developed capitalist countries while we have brought about an equilibrium in trade conducted with developing and socialist countries.

Is this a fragile equilibrium? Professor Bognar also stated that an equilibrium brought about by the compulsory restraint of dynamics is temporary and relative. I fully agree with this. We must eliminate the causes of the disequilibrium, and then we can achieve stable results, but we have not as yet put an end to these causes. We devote a great deal of capital work and

imports to a unit of national income. Therefore under the present structure it would increase the disequilibrium if we were to speed up growth. The party and the government never regarded low growth as a goal but a consequence. Under the old structure, it would not be difficult to achieve dynamics of high growth. The difficulty is that we must develop a higher growth rate in a new economic structure. There are still quite a few people --Bela Csikos-Nagy spoke of it in HETI VILAGGAZDASAG--who urge the pursuit of an upswing policy. These views certainly come from good intentions. But we must see that we have no such goods, or few, which would make it possible to bring about an upswing in the economy and in export.

Behind the figures we must also see that almost one-third of the industrial enterprises are actually not competitive under international conditions. The question is whether we should relax in competitiveness in this stringent situation or keep ourselves toeing the line: as our competitiveness grows so grows our dynamics. Apparently we have no alternative but the latter.

As for our joining international financial institutions, we asked the officials of the International Monetary Fund and the World Bank when we submitted our request: What is your opinion of our conditions? Hungary, we stated, is a sovereign country, and its economic policy is also independent. We belong to the Warsaw Pact and to CECA, and we wish to strengthen our relations with these organizations in the future. The financial institutions cannot ask us for such information as would harm our interests or those of our friends.

The answer we received was positive for all the Hungarian conditions. We are now well beyond the acceptance procedure and can speak assuredly of what the IMF can offer us. It will certainly improve our credit possibilities, giving us now greater access to more medium and long term credits. If in addition to the International Monetary Fund we also become members of the World Bank, and from which up to now we have been excluded. And there may be a number of Hungarian investment plans for the implementation of which we can obtain credits from the World Bank. We must solve our problems ourselves as we have done before. Still we should not underestimate those accessory possibilities which can be extended by the development of a relations system like this.

We must develop our management system in order to promote our course of growth. This management system has linked many people into the Hungarian economy and made them thinking and responsible people, something which cannot be expressed in forints.

6691

CSO: 2500/276

PROBLEMS OF 1982 BUDGET ANALYZED

Warsaw ZYCIE GOSPODARCZE in Polish No 17, 16 May 82 pp 1, 9

[Article by Grzegorz Pisarski: "Problems With Balance"]

[Text] Since the beginning of this year the state's budgetary management has been based on a provisional budget for a 5-month period. This period is coming to an end. It has thus become urgent for the Sejm to consider a draft budget for this year that allows for the complex whole of the new premises of the economic reform, the revised premises for economic development, and the effects of the introduction of new producer prices, procurement prices, and retail prices.

Most notable in the draft budget proposed by the government are the difficulties and complications associated with its balancing. Thus these matters especially require broader elucidation.

The Point of Departure

The situation of the state budget this year, like the entire economy, is very adversely affected by last year's performance. The sharp social tensions have gravely compounded last year's collapse of the economy and prevented the implementation of many of the measures intended to eliminate the budget deficit. The stabilization measures proposed by the government and accepted by the Sejm had been implemented only to a relatively small degree owing to the boycott by the leadership of Solidarity.

As a result, the deficit of the state budget for 1981, planned to be about 217 billion zlotys, was limited to only 124 billion zlotys. Thus the 1981 state budget was not fully balanced. The scale on which it was not balanced had in reality been even greater, since part of the consequences of the increases in procurement prices, amounting to 100 billion zlotys, was financed from bank credit instead of from the budget. The budget was incapable of financing a large part of the losses sustained by enterprises. In reality, then, the extent to which the budget was not balanced exceeds 300 billion zlotys. This lack of balance means that last year the state budget was a major factor in

aggravating the tensions of the economic situation. This was reflected in, among other things, a correspondingly greater scale of market shortages, since the funds placed by the budget at the disposal of schools, hospitals, the communal economy, etc., were not offset by market-supply possibilities. Thus, the budget became a factor that worsened, not alleviated, the general disorganization of our entire economy.

When looking for the causes of this occurrence, attention should be drawn primarily to two factors:

--The first factor was the high wage increases granted under the duress of strikes, which were justified neither by an increase in labor productivity nor by an increase in output. This has resulted in a huge increase in the cost of production and services and, as a consequence, in loss of profits for enterprises on a scale such that the total losses sustained by enterprises of the socialized economy proved to be higher than their total profits. Thus, the revenues derived by the state budget from the enterprises of the socialized economy proved to be lower than the subsidies that had to be paid to enterprises operating at a loss. This means that, among other things, the sphere of material production has ceased to provide benefits for social consumption financed from budget funds.

--The second factor, decisive to the rise of the budget deficit, has been the considerable increase in budget expenditures for the needs of social consumption. Owing to the intense pressure of social needs, the expenditures of the state budget on the communal economy and housing have increased 20 percent, while the expenditures on public health, education, and other public and cultural services have increased 26 percent. Moreover, the budget expenditures on social services increased 46 percent. Altogether, the increase in these three categories of budgetary expenditures on the needs of social consumption totaled about 150 billion zlotys, which represents an unprecedented scale in our economy. In the preceding years the rate of increase in these expenditures was much smaller--e.g., in 1980, it was about 30 billion zlotys.

All this means that budgetary management, like enterprise management as a whole, was marked in the previous year by spending on a much greater scale than justified by actual revenues. The decisions to increase expenditures had been adopted gradually, throughout the year. The consequences of these decisions, calculated for the year as a whole, as affecting the current year, are thus much greater. For many reasons, production possibilities have declined still further, on the other hand. Thus, we began the new year with prospects for the evolution of still more unfavorable proportions between budgetary revenues and expenditures.

Deficit For 1982

Current calculations show that this year we should expect a budget deficit of about 370 billion zlotys. Such a large deficit will occur despite the adopted premise that the budgetary expenditures relating to the so-called clearing of

accounts will be financed from the surplus funds deriving from the revaluation of inventories. The reasons for the emergence of such a large deficit have already been partially explained (effects of last year's decisions on this year as a whole). The situation is additionally aggravated by the great likelihood that the budget will receive from the enterprises as excessively small part of the income they will derive from the price increases, while at the same time, owing to many essential social considerations, we will have to increase budget expenditures to a sizable extent.

As regards the revenues from the enterprises of the socialized economy, here the reform was to play an essential role.

This concerns such expenditures as the clearing of accounts associated with budget-financed investments (schools, hospitals, roads, etc.), refunding to the banks the amortization payments relating to certain loans for agriculture and housing construction, and clearing of accounts with the banks as regards the payments of interest on foreign bank loans, etc. The adopted assumption is that expenditures of this kind will be offset with funds gained as a result of the adjustments of the prices of inventories to conform with new prices. Part of the equivalent of profits from these price adjustments must be deposited by the enterprises in a special clearing account at the NBP [Polish National Bank].

From this standpoint, the most important measure was to be the reform of producer prices and the introduction of new higher retail prices. Current estimates show that this operation has resulted in restoring the profitability of means of industrial production and services in the country as a whole. It is estimated that the overall financial accumulation by enterprises will exceed 800 billion zlotys, whereas in 1980, for example, it had amounted to a little less than 300 billion. It is of basic importance to the state budget to determine the part of that amount which will represent its revenues on the basis of the new principles of the economic-financial system of enterprises. This is extremely difficult, because even now it is not possible to determine which enterprises will become highly profitable and pay high income taxes to the budget, and which will be relatively unprofitable and either pay nothing or very little into the budget.

Budget calculations are based on the assumption that about 45 percent of the financial accumulation of enterprises will be paid into the budget. This will leave the enterprises with some 440 billion zlotys at their disposal plus about 250 billion zlotys in remaining fund resources. After payments of interest on investment credits and deductions to the contingency fund, the enterprises will probably be left with more than 500 billion zlotys at their disposal to be spent on wage increases, awards, bonuses, the social services fund and investments. This warrants the conclusion that the price reform, on the whole, restored the financial health of the enterprises although they will have to pay out budget subsidies in many fields of production. But as for the problem of eliminating the budget deficit, it still exists.

The great size of the budget deficit and the large amount of funds remaining at the disposal of enterprises point to the need to consider whether they should not share more of their funds with the state budget. The government has proposed

to the Sejm that this should take place in the form of a stabilization loan in the amount of 30 percent of the profits of enterprises after the payment of income taxes. This would serve to additionally increase the revenues of the state budget by about 140 billion zlotys and to correspondingly reduce the deficit. At the same time, this would temporarily restrict the extent to which enterprises spend more on bonuses, social services and investments. Such restrictions seem, given our present situation, fully justified by the lack of the market supplies needed to offset the funds assigned for these purposes. As regards, on the other hand, the surmounting of the most important material shortages through the undertaking of appropriate investments by enterprises, this process can be more effectively guided by means of bank credit and eventual tax relief.

The improvement in the financial condition of most enterprises points moreover to the advisability of taking steps to have them pay for certain of their expenses which at present are subsidized by the state budget. This concerns state budget subsidies of the national retirement fund, which this year are markedly increasing owing to, in particular, the need to finance compensation payments to pensioners and annuitants so as to offset the consequences of the increases of retail prices. The elimination of these subsidies would require raising the corresponding premiums to about 45 percent from the present 25 percent of the wage fund. Such a considerable one-time increase in premiums might, however, in many cases increase the costs excessively as well as exert strong pressure for price increases. Thus, the proposed assumption is that the necessary increases in premiums will be carried out gradually over several years. Thus, this year, the premiums would be increased to only 33 percent. This would make it possible to reduce the budget deficit by an additional 30 billion zlotys, more or less.

In the event that these measures are taken, the remaining deficit will still be about 200 billion zlotys. Formally, about 115 billion zlotys of that sum could still be financed from the holdings of the budget at the NBP that have been accumulated over the previous years and the remainder with bank loans. It is possible, however, that even this may prove unnecessary, because the balance of funds following the aforementioned repricing of inventories may turn out to be much higher than estimated. The settlement of the related accounts will probably still continue until this coming June.

This does not, however, in any way reduce the need to continue the work to further mobilize budget revenues, because such a solution is by its very nature interim. A large part of budget expenditures at present is financed from revenues of a nonrecurrent nature, that is, with funds deriving from the repricing of inventories and with budget surpluses from the previous years, as well as, eventually, with bank loans. A recurrence of a sizable budget deficit is thus to be expected next year when the extra funds deriving from the repricing of inventories as well as from budget surpluses will no longer be available. Of course, as is known, many countries have been living with deficits for years, and pretty well at that. As a rule, however, their deficits are not as high in relation to their overall expenditures and their economic situation is completely different.

In countries with a substantial surplus of produced means of consumption and adequate possibilities for procuring supplies of raw and other materials, a budget deficit can be tolerated for some time, because if more is spent from the budget than taken in, this results in additional demand for various material goods and services which can be satisfied with no major difficulty. In this country, on the other hand, the situation is completely different. We experience acute shortages of material goods, and the injection of extra monies through a deficit budget merely augments the scope of these shortages and hence also disorganizes the economy and stimulates additional price increases. This is because then the extra money appearing on the market is not offset by an extra supply of goods.

Thus, it is extremely important to an improvement in our economic situation that possibilities for actually eliminating the budget deficit be further explored.

Paths Toward Balance

From the economic and social standpoints, the most appropriate and desirable path toward a balanced budget should, of course, be an increase in production and a decrease in production cost, which should result in a marked increase in budget revenues without any special "sopping-up" measures. This should be promoted by the new principles of functioning of the economy. But doubtless we would have to wait, and for several years at that, before such a policy would bring tangible results. Thus, we have to intensively explore other ways of eliminating the budget deficit. One such path is the aforementioned temporary extra levies on the profits of enterprises of the socialized economy.

As regards the nonsocialized sector of the economy, the taxes payable by artisan establishments have already been raised about 60 percent. It appears that in our search for additional sources of budget revenues we should not overlook private peasant farming. This issue should be considered from a new standpoint. The drastic increases in procurement prices have markedly added to the incomes of the rural population while at the same time its tax burden has remained unchanged for many years and, in relation to income, the taxes paid even by relatively inefficient farmers are of a rather merely symbolic nature. This has perpetuated the existence of poorly managed farms with extremely low volumes of marketable output. A suitably high tax rate would define the minimal level of profitability of farms and prevent the survival of the most badly managed farms. Their lands would be taken over by those who can manage them better. This would contribute to the intensification of production on private peasant farms.

This reasoning also justifies a marked increase in premiums payable to the Retirement Fund of Farmers, considering that currently these premiums total barely about 3.5 billion zlotys annually, whereas expenses from this fund will exceed 45 billion zlotys this year. The difference, amounting to about 42 billion zlotys, has to be offset through a subsidy from the state budget.

Owing to the low tax rates and low premiums paid by farmers into their retirement fund, the services provided to farmers, such as education, public health, and social security, cost the state several times as much as the revenues it collects from farmers in the form of taxes and retirement-fund premiums. This is yet another factor obscuring the true cost of food production.

Further ordering of prices will be another element, and a very essential one at that, in the elimination of the budget deficit. This is because too many prices still remain below production cost and require considerable subsidies from the state budget. This concerns chiefly the prices of services, especially the rates charged for freight and passenger transit, housing rents, radio and TV fees, urban rapid transit, etc. The recent major raises of prices of coal and cement still are not high enough to offset their production cost. All this requires budget subsidies counted not in billions but in hundreds of billions of zlotys.

Thus, balancing the budget requires continuing the process of ordering the price system. But this must be done with great deliberation, because it directly affects the living standards of the population. It should be borne in mind, however, that in the final analysis, an unsettled price system affects very adversely the effectiveness of the economy and hence also the evolution of living standards.

Little time has remained for carrying out the measures discussed here, which are most important from the standpoint of balancing the budget. Practically speaking, [the time that remains is] the second half of this year and the first half of the next. Unless we succeed in balancing the budget during this period, we will be forced to introduce sharp cutbacks in budget expenditures on even such important consumer fields as public health, social services, utilities, housing, and the subsidies for staple foods. This would be a step backward compared with the tremendous advances which we have scored in these fields in the last few years--and intend to score this year. But these matters require separate treatment.

1386

CSO: 2600/612

FOREIGN TRADE SITUATION IN 1981 DISCUSSED

Warsaw HANDEL ZAGRANICZNY in Polish No 1-2, 1982, pp 3, 4, 14

[Article by Marek Misiak: "The Year 1981 and Conditions for the Start"]

[Text] The view that foreign trade is one of the basic barriers for overcoming the Polish economic crisis is widespread. This view equates the negative consequences of "the debt noose" with our exchange with foreign countries, which is expected, somehow all by itself, to at least loosen, if not eliminate, that noose.

However, the data on the situation of foreign trade last year suggests that the problem lies far deeper. It is deeply rooted in the proportions of generating and distributing national income and the efficiency of utilization of the basic production factors, above all, fixed assets and materials. This point of view must be respected in assessing the situation in Polish foreign trade and the payments situation and in formulating recommendations for the ways of surmounting the crisis as well.

In 1981, national income declined by 13 percent as compared to 1980 and by about 18 percent as compared to 1979 (in constant prices). At the same time, the balance of foreign trade turnover in convertible currencies amounted to a relatively small negative quota at the end of 1981, about 200 million foreign exchange zlotys (that is, about \$60 million), as compared to minus 3 billion foreign exchange zlotys (about \$0.9 billion) at the end of 1980 and minus 5.2 billion (more than \$1.5 billion) in 1979. Such a marked decrease in the negative balance was primarily a result of decreased convertible-currency imports in 1981 as compared to 1980 by about 29 percent in current and more than 33 percent in constant prices. Convertible-currency exports decreased somewhat less, by 20.6 percent in current and more than 24 percent in constant prices. It should be noted that terms of trade were unfavorable for Poland last year: the ratio of foreign exchange prices in exports for convertible currencies was 104.7 percent, whereas in imports 106.2 percent.

The decrease in imports from capitalist countries manifested a declining tendency over the particular quarters of 1981. In the first quarter, imports from capitalist countries decreased by 10 percent as compared with the same period in 1980, in the second quarter--by 24.8 percent, in the third quarter--by 35.8 percent and in the fourth quarter--by as much as 40.4 percent. In

December of last year, these imports fell especially far down as compared to December 1980, by 53.9 percent (in current prices). These imports are estimated to have fallen by about 60 percent in constant prices. In January 1982, convertible currency imports also amounted to an exceptionally low quota of 1.2 billion circulation zlotys (\$150 million), which means, in comparison with January 1981, a decline by 41.6 percent (in current prices, or by about 50 percent in constant prices). This was a result of the lack of means for payments, due to the necessity to make rigid overdue payments associated with the debt servicing.

About \$9 billion in principal and interest came due in 1981. It is estimated that about \$2 billion out of this quota had been paid before refinancing talks were begun in April 1981. As a result of the talks, until the end of the third quarter of 1981 payments of \$5 billion were postponed, out of which \$2.6 billion were for government loans servicing and \$2.4 billion--bank loans servicing. The non-European governments agreed to postpone 90 percent of payments of principal and interest coming due between April and December 1981. The banks agreed to postpone 100 percent of principal payments, provided that the interest on bank loans coming due in this period would be paid before the end of 1981. The banks did not agree to postpone interest payments.

Therefore, on the threshold of 1982, we faced the necessity to pay the remainder of the payments due at the end of 1981 and the beginning of 1982. On top of that, principal and interest payments amounting to more than \$10 billion are coming due in 1982, which is a commitment that cannot be fully honored this year without obtaining new credits or other relief. Annual income from commodity and service exports will not exceed \$7 to \$8 billion in the best scenario this year, but there will still be expenses for imports.

The way this indebtedness has come about is no secret for either Poland or her creditors. The influx of technology from capitalist countries in the 1970's created a situation, whereby the utilization of Polish production potential became greatly dependent on imported materials with high technological "adjusted" to the imported technologies. Increased imports of equipment paid for with capitalist currencies also became necessary. This also included spare parts. However, an adequate export production volume to capitalist countries was not created by technical potential. As a result, the created technical potential was utilized in an increasingly smaller degree because imported and other supplies had to be restricted from these countries.

A negative balance of turnover within the framework of the so-called food-stuffs sector was also a considerable burden. This was a result of weaknesses in agricultural policy and also of low harvests, especially in the 1980-1981 agricultural year. In 1981, more than 7.2 million tons of grain and milled commodities and 1.3 million tons of oil-meal and oil cakes were imported. Total imports of raw and other materials for agriculture and the food economy for western currencies exceeded \$2 billion. The impact of reductions in

these imports will only become apparent this year, which will be reinforced by the sanctions instituted by the USA.

The effect of payment difficulties which limit supply imports from capitalist countries can be quite easily discerned from last year's statistical data. This import decreased by 41 percent in current prices as compared to 1980. In constant prices, this decrease reached about 43 percent. As compared to 1979, supply imports for convertible currency decreased by about 50 percent. The largest decrease, by about 73 percent (in constant prices) occurred in fuel imports. This was primarily a consequence of stopping crude oil imports from capitalist countries, of which we imported only 400,000 tons in 1981 as compared to 3 million tons in 1980. Imports of the iron and steel goods in 1981 decreased by 58.6 percent as compared to 1980, or by 67.9 percent as compared to 1979. Imports of electric machine building products were down 42.4 percent (as compared to 1979--51.7 percent), products of the mineral industry--41.6 percent (as compared to 1979--58.5 percent), products of the chemical industry--38.7 percent (as compared to 1979--41.1 percent).

Ensuing difficulties were eased partially by keeping up imports from socialist countries at a relatively stable level. Supply imports from these countries increased by 12.5 percent as compared to 1980 and by 28.5 percent as compared to 1979 (in current prices). In constant prices, these imports were 4.8 percent less last year than in 1980 and 0.8 percent higher than in 1979. Fuel and energy imports from socialist countries declined by 1.5 percent in constant prices (compared to 1979, they grew by 6.8 percent). At the same time, imports of chemical products grew by 7.3 percent compared to 1980 and by 14.8 percent compared to 1979. In the commodity groups, where a decrease of supply imports from socialist countries occurred, it was much less marked as compared to imports from capitalist countries. However, our exports to socialist countries decreased over this period much more markedly, which caused a systematic growth of our indebtedness to these countries (primarily the USSR) from 0.8 billion transferrable rubles in 1979 to 1.4 billion in 1980 and 3.3 billion in 1981.

Combined supply imports from socialist and capitalist countries decreased by 21.5 percent in 1981 compared to 1980 and by 23.2 percent compared to 1979. It is understandable that such a decrease in imports had to bring about a decrease in production, a lower degree of utilization of production capacity, a deterioration in production efficiency and a decrease in exports.

However, one cannot fail to notice that the economic capacity has been deteriorating in Poland for many years. This is especially apparent if the productivity of fixed assets is taken as an example. The rate of decrease in the productivity of fixed assets was accelerating as early as the 1970's and amounted to 1.4 percent in 1976, 3.4 percent in 1977, 7.1 percent in 1978, 9.5 percent in 1979 and 9.6 percent in 1980. A faster growth of technical development of labor compared to increases in production was the reason for this phenomenon since 1976, and since 1979--also a decrease in production volume. It should be noted that the technical development of labor was still growing until as late as 1981, despite a precipitous decline in investment (by 25.7 percent compared to 1980 and more than 35 percent compared to 1979).

There is a certain time lag in the changes of technical development of labor following investment. Consequently, in this case the reverse, in the form of lower technical development of labor will be felt only in the years to come (among other things, in the form of aging fixed assets).

In 1981 a further decrease in the productivity of fixed assets was registered. The magnitude of this decrease probably exceeded 20 percent (compared to 1980). In this estimate, it is assumed that net industrial production decreased by about 18 percent, whereas technical development of labor grew by at least 2 percent. In the fourth quarter of 1981 and in December 1981 and January 1982, a decrease in the productivity of fixed assets was still larger, because in this period a further decline in production of several percentage points occurred, mainly associated with limitations on supply imports from capitalist countries. It follows from the above that in the years 1976-1981 productivity of fixed assets decreased more than twofold (including decreases of about 32 percent in the years 1976-1980 and 20 percent in 1981). Docent Dr L. Zienkowski, on the basis of these data, placed the unutilized production capacity in particular industries to be between 25 and 50 percent. Despite this disastrous process, it was necessary to limit imports from capitalist countries because of the rigid payment burden imposed on export revenues discussed above.

One of the consequences of limited imports was a reduction of exports. A declining tendency was evident in particular sectors last year. This, in turn, caused a decrease in consumption and investment in accordance with the principle of forward linkages.

It follows from the preliminary estimates that total investment outlays in the socialized economy were about 140 billion zlotys in 1981, or about 25.7 percent lower than in 1980 and 35.1 percent lower than in 1979. Consequently, the share of net investment in the distributed national income, despite the appreciable decrease, dropped from 22 to 11 percent in current prices and to 9 percent in constant prices. This reduction in the share of investment magnitude unparalleled anywhere in the world. The share of national income for investment by CEM countries, as a rule, has never dropped below 15 to 17 percent in any country. In the majority of capitalist countries, this share has also not been below 15 to 17 percent.

In the face of such a precipitous investment decline, tremendous capital was tied up and a further increase in frozen investment projects was unavoidable, despite the fact that the number of newly started investment projects was reduced by about one-half as compared to 1980 and by more than two-thirds as compared to 1979. Unutilized machinery and equipment are a peculiar element of the investment freeze. The data for the end of September 1981 show that they amounted to 61.7 billion zlotys compared to 53.2 billion zlotys at the end of 1980 and 45.3 billion zlotys in 1979. The value of unutilized imported machinery also grew. This means that the slowed investment process was inadequate. Consequently, this will certainly make it necessary to broaden the list of halted investment projects. In many fields, this would translate into accelerating the process of fixed asset depreciation with all the ensuing negative consequences.

The basic problem involves an assessment of opportunities for a transition from slowing investment down to such a restructuring of production capacities, which will create conditions to stabilize and increase production. Switching over to production based to a much larger degree on domestic raw materials and also to more efficient production will require many structural changes within industries and enterprises.

The last years and months have been a period when supply difficulties with imports from capitalist countries snowballed. The economy took the blow largely by losing production. Defensive reflexes in the form of a search for substitute stock allocation opportunities were not efficient enough to halt this process. Particular enterprises and also ministries are reluctant to come to terms with the reality of "fending for themselves." Everybody wants to enjoy preferential treatment in the distribution of means of production.

This was manifested in recent months, when almost everybody wanted to take part in operational programs.

Reality is forcing us to speed up undertakings which as late as yesterday could have been implemented with no particular hurry. It is understandable that with such a shortage of resources it is necessary to direct them to where they can generate the greatest effect from the point of view of our payment situation. We should also tap domestic research and the development base. After all, this base employs 220,000 persons, which include--a considerable number of professionals with high and very high qualifications. This base was not well accepted in the 1970's (at least, until 1978), especially when it offered its findings because justifications for purchasing [foreign] licenses were being sought. Using the potential of these nearl quarter of a million research and development employees is an important factor for transforming the production structure in accordance with the environment created by restricted resources and a management reformed system.

The initiation of the process of economic reform is associated with creating conditions for enterprises which are conducive to finding new solutions in the areas of organization, supply and, finally, in production techniques and technology and structure aimed at obtaining profit. This will not always be possible to accomplish if the consequences of mismanagement are passed on in the prices of goods, though some symptoms of such tendencies can be observed. In the area of foreign trade, the reform, in accordance with its assumptions, must bring about an increased incentives to increase export efficiency because this is the main factor which will make it possible to overcome the crisis.

FOOTNOTE

1. See "Credit Talks," ZYCIE GOSPODARCZE, No 44, 1 November, 1981.

9761
CSO: 2600/620

OIL, NATURAL GAS PRODUCTION PLANS FOR 1982 OUTLINED

Bucharest REVISTA ECONOMICA in Romanian No 13, 2 Apr 82 pp 6-7

[Article by Valeriu Soare, deputy director in the Petroleum Ministry]

[Text] As party documents have pointed out, sustained efforts must be made during this year, as in fact during the entire five-year plan, for an intensive development of a domestic raw materials base. Priority is being given to the discovery and valorification of the largest possible amounts of hydrocarbons and coal. This means that the oil and gas industry has exceptional responsibilities for completing on time and placing in operation a significant number of new production capabilities, for better labor organization, and for increasing the production that is so necessary to petrochemical plant and refinery processing, so as to provide the national economy with a broad range of raw materials and fuels.

Major Investment Objectives

Increased oil and gas production requires first of all greater efforts in geologic prospecting to discover new reserves for drilling, exploitation, injection, and placement in production of planned new capabilities. The documentation and design of new production structures require relatively long times (at least 4-5 years), which means that the investments made during that time are frozen, and that their recovery does not begin until after they are completed. That is why prospecting, drilling, and well production are carried out in parallel with research.

The large investment volume in the oil and gas extraction industry is also determined by the nature of the complex processes involved in their production. The attached table shows the 1981-1982 investments made in the oil industry.

An analysis of the structure of these investments indicates that a large portion of them are devoted to geologic projects and exploitation drilling, so as to assure production reserves for the longest possible period, and to exploit them through new wells. To this end, significant investments are stipulated for completing the priority programs for very deep drilling. As a result of the results obtained in past years, during 1982 this drilling will increase by 40 percent over the preceding year, to confirm the hypothesis that exploitable hydrocarbons are available at great depths. The good results obtained thus far have led to a reorientation of activities in areas of high interest, in which oil was found below 4000 m: Virteju, Valuta, Stoenita, Slavuta, Bibesti, Contesti, and Calina-Draganu.

Investment destination	1981	1982
Discover new oil and gas reserves	32.0	32.2
Drill exploration wells and increase deposit recovery	19.0	19.7
Installations for placement in production	20.0	18.8
Equip drilling, construction, and installation organizations	29.0	29.3

Still on the topic of investments, it should be pointed out that for a more efficient valorification of hydrocarbon reserves, work was started on the construction of gas compressor stations at Danes, Filitelnic, and Taga, and that the pipelines which will connect the gas fields to consumers will cover more than 600 km. Concurrently, the automation of well fields will be extended to include more than 1000 wells, while an extensive action will be placed underway to electrify drilling installations in order to shift from diesel fuel to electric power. At the same time, the concentration of efforts in the country's western areas in order to exploit as rapidly as possible the newly discovered oil and gas deposits, is another concern of the collectives which contribute to the scheduled completion of investments with the highest possible efficiency.

In order to complete the investment plan and place in operation the production capabilities planned for 1982, measures were taken beginning in the second quarter of 1981, to provide documentation, contract for tooling, and perfect the forms for occupying the land in question. At the same time, new construction groups and sites were organized to satisfy the growing needs of the oil industry in the operation of wells and installations. Because experience has demonstrated the many technical and economic advantages offered by the use of standardized projects which result in advantageous technical and economic indicators, and which offer solutions soundly controlled in all their aspects (faster formulation of investment documentation, and creation of a basis for increasing the industrialization and transformation of the production process at an installation site), steps were taken to assure that 33 standard projects would exist by the end of the current year. The construction of standard installations was similarly expanded, a process which has led to a significant reduction in constructions. As a result, more than 95 percent of the fixed assets in the oil industry are presently erected on foundations prefabricated outdoors, without costly and complicated constructions, and when the technology also requires enclosed spaces, the solution is to use enclosures built from corrugated iron, whose cost is also lower because they can be rapidly assembled and disassembled.

Planned Capabilities in Operation on Schedule

In the much improved framework of measures taken in proper time, the builders have undertaken new projects and are continuing those in progress, under better conditions than those of previous years. That is because much better documentation has been provided than in previous years (over 83 percent by 30 December 1981, and more than 90 percent by the end of the first quarter of this year, the remainder to 100 percent being determined by the results obtained from geologic borings being carried out in totally new zones). Investment planning charts as well as the more than 3500 projects in execution, have assured the scheduled start and pursuit of the work.

Because they were well prepared, the plan provisions for all investments were fulfilled even during the first month of 1982, so that this indicator can even be surpassed during the first quarter of 1982. It is notable that the wells which provide production capabilities for the oil industry are being placed in operation on schedule, in accordance with the formulated programs.

About 200 oil wells with a production capacity of more than 1400 t/day were placed in operation during the first three months of this year, and their number and production is expected to double during the second quarter. Together with that, we have built 12 oil collection, transportation, and storage facilities, and more than 100 km of roads to research and exploitation wells. At the same time, in order to improve working conditions at work sites, about 200 apartments and 150 camps were placed in use in new areas with intensive activity and high concentration of material resources and manpower.

But although the ministry's plan for total investments was fulfilled, some lags persist in some sectors, such as the Transylvania basin and the Western zone. This situation is primarily due to the very low temperatures of winter, when it was not possible to normally carry out the assembly of installations and of oil and gas pipelines.

Given this situation, as well as the need to accelerate the increased production of hydrocarbons, the appropriate ministry and its units have formulated programs of supplementary measures for the second quarter of 1982, which will include:

Reassignment and redistribution of about 200 workers and technicians with the appropriate training, to the country's western zone, so as to intensify the research and exploration activity in areas of high economic interest and efficiency;

Starting and intensifying the work on the Danes gas compression station (Mures County), and on the Hurezani-Bucharest gas pipeline, so that they will be placed in operation by the end of the year;

Encourage and support collaboration among users, builders, designers, suppliers, and other partners, for the scheduled delivery of tubing and pipes (extraction, drilling, conduits), installations, motors, and drills.

Activation of Old Wells and Maintaining Constant Output in Extraction

The extraction process of oil and gas involves particular aspects of deposit exploitation which are reflected in production levels and in economic efficiency. That is why in order to eliminate the production decrease of some wells, investments are required to drill wells in order to maintain a constant production level; at the same time, it becomes necessary to change extraction systems in time, and to apply new technical processes (fluid injection in the deposit and stimulation of crude flow into the well hole), all of which require additional investment operations and exploitation costs. In order to minimize the production reduction, concrete programs have been formulated in time for each deposit and well, on the basis of which dozens of technical operations are performed daily. The actions undertaken last year, for instance, have succeeded in limiting the reduction to 13 percent compared to 1980.

For 1982, investments have been planned to discover new oil and gas deposits, to place them in exploitation, and to introduce new secondary recovery processes that are 25.5 percent larger as a whole, and 33.2 percent larger for construction and installation, than those of 1981. These increases impose more design, planning, and execution capabilities, as well as higher efficiency in project completion. To this end, the plans include the injection of water, steam, and micellar solutions into deposits, which will contribute to increase the recovery coefficient of crude oil from deposits. In addition, new experiments are planned for underground combustion, as well as their extension to the Barcau and Videle- Balaria substrates.

In fact, exploitation through underground combustion will be extended to a large number of deposits, so as to ultimately obtain a more accelerated increase in the crude oil recovery factor, which--together with other factors--will contribute to the fulfillment of the plan at the annual levels established for hydrocarbon extraction.

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